

DORIEN HERREMANS

Position Assistant Professor (data science/AI)
Director of SUTD Game Lab
Singapore University of Technology and Design

Contact *dorien.herremans@gmail.com*
http://dorienherremans.com

Details Gender: Female
Date of birth: 26th of July, 1982
Currently managing a **team of 15+** developers, PhD students, and researchers.

PROFESSIONAL EXPERIENCE

August 2017–... **Singapore University of Technology and Design (SUTD)**

Assistant Professor (Tenure Track), Computer Science and Design
Primary appointment

Joint appointment at the Design and Artificial Intelligence programme

Director, SUTD Game Lab (independent Research Institute within SUTD)

Lab leader: AMAAI (Audio, Music, and AI lab)

Teaching focus: Computational data science, AI

2020–... **International Artificial Intelligence and Quantum technology Foundation (INAIQT), Davos, Switzerland**

Advisory Board Member

2021–... **Sounders Music, The Netherlands**

Advisory Board Member (chair)

2020–... **AI Business School, Zürich**

Academic Board Member

August 2017–July 2020 **Agency for Science, Technology and Research (A*STAR)**

Joint appointment with SUTD - Institute of High Performance Computing

December 2017–2019 **NVIDIA Deep Learning Institute**

Certified Deep Learning Instructor & Deep Learning University Ambassador

June 2015–May 2017 **Queen Mary University of London**

Marie-Curie fellow, School of Electrical Engineering and Computer Science

Marie Skłodowska-Curie individual fellowship for experienced researchers H2020 (98% evaluation score)

Research topic: MorpheuS: Hybrid Machine Learning – Optimization techniques To Generate Structured Music Through Morphing And Fusion with: Prof. Dr. Elaine Chew, Center for Digital Music (C4DM)

2010–2015 **University of Antwerp, Belgium**

Mandaatassistent Department of Engineering Management (50% teaching, 50% re-search)

Research topic: Music and Operations Research

May-June 2014 **Universidad del País Vasco UPV/EHU, San Sebastián, Spain**

Visiting Researcher, Department of Computer Science and Artificial Intelligence

Invited by Prof. Dr. Darrell Conklin

Topic: Generating structured music using quality metrics based on Markov models.

Funded by EU FP7 project: Lrn2cre8 grant number: 610859.

2009–2010 **Vanbreda International, Antwerp, Belgium**

Webmaster

Collaboration on project to build a new Drupal site and management of around 170 microsites.

2006–2009 **Holistic Vibes Sàrl (own company), Sierre, Switzerland**

Web Developer & author

Part-time Drupal development/consulting. Wrote a book.

2006–2008 **Les Roches, International School of Hotel Management, Montana, Switzerland**

IT Lecturer

Ranked among the top 3 hospitality management schools in the world (Taylor Nelson Sofres, global research, 2013)

EDUCATION

3/2010–12/2014 **PhD in Applied Economics**

University of Antwerp, Belgium

Faculty of Applied Economics, Department of Engineering Management

Thesis: Compose \equiv Compute, Computer Generation and Classification of Music through Operations Research Methods

Supervisor: Prof. Dr. Kenneth Sørensen

University of Antwerp is AACSB accredited

9/2000–7/2005 **MSc Business Engineering in Management Information Systems**

University of Antwerp, Belgium

Faculty of Applied Economics

(5 year program resulting in a degree in Applied Economics and Engineering)

Major: Management Information Systems

Minor: Operations Research

Thesis: Tabu Search For The Optimization Of Musical Fragments

Grade: Great distinction

University of Antwerp is AACSB accredited

ADDITIONAL PROFESSIONAL CERTIFICATES AND DIPLOMAS

- 2022 Certified NFT Developer. Blockchain Council.
- 2022 Certified NFT Expert. Blockchain Council.
- 2022 Certified Metaverse Expert. Blockchain Council.
- 2021 Diploma in Corporate Governance - Corporate Governance Institute, Calidonian University (Distinction)
- 2021 Professional certificate in FinTech - University of Hong Kong (3 courses)
- 2021 Professional certificate in Technical Analysis - New York Institute of Finance (2 courses)
- 2020 Course in AI Strategy - University of Berkeley

AWARDS

- 2021 Women in the Singapore 100 Women in Tech (SG100WIT) 2021 List.
- 2021 Honorary AI Scientist Certification – Certified Artificial Intelligence Scientist (CAIS™) - from United States Artificial Intelligence Institute (USAII).
- 2017 Marie Skłodowska-Curie individual fellowship.

GRANTS

Ongoing:

- MOE **PI**. *Trust 3 - Metaverse and blockchain for learning*. SGD 789,600. 1 Oct 2022 - March 2024.
- SUTD kickstart **PI**. *FEM - A framework for expressive prompt-based generative Music*. SGD 498,089.52. 15 Nov 2023.
- Temasek *General audio denoising and source separation through waveform super-resolution*. Seed grant. SGD 85,000. 1 Jan 2023 - 31 Dec 2023.
- AI Trust *Metaverse game with AI and 5G*. **PI**. SGD 342,900. Mar 2022- Nov 2023.

Successfully completed:

- SUTD MOE **MVP. co-PI**. SUTD Growth Plan Grant for Cyber-Physical Campus. Grant No. PIE-SGP-CPC-2022-01. SGD 114,950. April 2022- Sept 2022.
- MOE Tier 2 *aiMuVi: AI Music generated from Videos*. **PI**. Grant no. MOE2018-T2-2-161. SGD 648,216. Jul 2019- Jun 2022.
- DSO **PI** *Project Coriolis: multi-modal interaction research and simulator development*. SGD 790,000. Personally managed SGD 476,500. Grant no. RTDS190604. 12 March 2020 - 12 May 2022.
- SingHealth PHIF **co-I** *Developing an auscultation system that classifies swallowing sounds during a speech therapy assessment* SingHealth-SUTD PHIF. SGD 50,000. SingHealth-SUTD Population Health Innovation Fund (PHIF). Grant no. SingHealth-SUTD PHIF 2021-04. Aug 2021 - Aug 2022.
- SMF *Tracking & Facilitating Childhood Speech Acquisition & Development in the Singapore*

Context. **co-PI**. SGD 749,999.72. Oct 2019 - Sept 2022.

CGH – SUTD *HealthTech Innovation Fund* **co-I**. Bioacoustic Collection of Heart Sound via Smart Phone for the Creation of a Novel Heart-Health Screening Application. SGD 249,997 (of which SGD 124,998 for SUTD). CGH-SUTD-HTIF-2018-002. 1 March 2019 - 28 February 2021.

SUTD *Startup Research grant*. **PI**. Advancing AI and machine learning with applications in digital music and beyond. SRG ISTD 2017 129. 2017. SGD 100,000

IMDA *Interactive Digital Media R&D Program Office, Singapore*. **Director/PI**. Game Research, Education, and Training (GREaT). SGD 5,690,000. Oct 2012-Sept 2018. I took over PI/Directorship in Jan 2018.

MIT-SUTD IDC *SUTD-MIT International Design Centre Research Project* **co-PI**. Designing an AR Game for climate change and awareness. Grant no. IDSF1200119OH. SGD 360,731.17. 1 April 2019 - 28 February 2020.

MIT-SUTD IDC *SUTD-MIT International Design Centre Research Project* **PI**. An Augmented Reality Game for Climate Change Awareness. Grant no. IDSF1200118OH. SGD 341,920. 17 October 2018 - 28 February 2019.

MIT-SUTD IDC *SUTD-MIT International Design Centre Research Project* **PI**. An intelligent system for understanding and matching perceived emotion from video with music. Grant no. IDG31800103. SGD 497,842. June 2018-June 2020.

Game Lab Contract *SUTD* **PI**. Dual-language Intervention in Semantic memory – Computerized (DISC) SGD 57,500. December 2018 - May 2019.

Game Lab Contract *SUTD* **PI**. DSO Project - Realistic Virtual Environment for testing of automatic agents. SGD 58,960. July 2019 - December 2019.

NUHS *NUHS Innovation Grant* **co-I**. The development of an interactive game-based application for speech practice. SGD 50,000. August 2018-August 2019.

MIT-SUTD IDC *SUTD-MIT International Design Centre Research Project - Infrastructure grant* **co-PI**. GPU server for Artificial Intelligence Research and Applications in Affective Computing. Grant no. ITT30009990. SGD 104,405.25. Awarded July 2018.

MIT *SMART*. **PI**. An audio content based semantic music search system. ING1611118-ICT. 2018. SGD 247,588. Oct 2016-Jan 2019.

MOE *MAF*. **co-PI** *Teaching and Learning English Pronunciation by Generating the Vocal Tract Shapes from the Frequency Domain Information*. PI: Dr Chen Jer Ming. AFD 05/15 SL. SGD 241,539. 18 Feb 2016 - 17 Oct 2018

MIT *SMART Ignition grant*. **co-PI** *Acoustic Analytic Apps for Smart Telehealth Screening - creating a big data for deep learning*. PI: Dr. Hee Hwan Ing (KKH). SGD 49,560. Feb. 2017- feb 2018.

European Commission *Marie Skłodowska-Curie individual fellowship for experienced researchers*. **Fellow**. Grant number 658914, 2015. €183,454.80

FWO *Travel grant* number K221314N, summer school on Computer Music Analysis (Athens, Greece), 2014.

FWO *Travel grant* number K1D5514N, ICMC/SMC conference (Athens, Greece), 2014.

PUBLICATIONS

Preprints of the publications below are available at <http://dorienherremans.com/biblio>

Editorials

- Herremans D., Chuan C.H. 2019. The emergence of deep learning: new opportunities for music and audio technologies. Editorial to Special Issue on Deep Learning for Music and Audio. **Neural Computing and Applications**, Springer. IF 5.606.

Journal publications

- Kang, J. and Poria, S. and Herremans, D. 2023. Video2Music: Suitable Music Generation from Videos using an Affective Multimodal Transformer model. arXiv:2311.00968.
- Chua, P., Makris, D., Herremans, D., Roig, G., & Agres, K. (2022). Predicting emotion from music videos: exploring the relative contribution of visual and auditory information to affective responses. arXiv:2202.10453.
- Herremans D., Low K.W.. 2022. Forecasting Bitcoin Volatility Spikes from Whale Transactions and Cryptoquant Data Using Synthesizer Transformer Models. arXiv:2211.08281.
- Ong, J., and Herremans, D. 2023. Constructing Time-Series Momentum Portfolios with Deep Multi-Task Learning. **Expert Systems with Applications**, Vol 230, 120587. IF: 8.5.
- Zou Y., Herremans D.. 2023. A Multimodal Model with Twitter Finbert Embeddings for Extreme Price Movement Prediction of Bitcoin. **Expert Systems with Applications**, Vol 233, 120838. IF: 8.5.
- Koh, E.Y.; Cheuk, K.W.; Heung, K.Y.; Agres, K.R.; Herremans, D. MERP: A Music Dataset with Emotion Ratings and Raters' Profile Information. **Sensors** 2023, 23, 382. IF: 3.847.
- Pham Q-H, Herremans D., Roig G.. 2022. EmoMV: Affective Music-Video Correspondence Learning Datasets for Classification and Retrieval. **Information Fusion**. IF: 18.6.
- Huang J, Chia YK, Yu S, Yee K, Küster D, Krumhuber EG, Herremans D, Roig G. Single Image Video Prediction with Auto-Regressive GANs. **Sensors**. 2022; 22(9):3533. IF: 3.847.
- Herremans D. 2021. aiSTROM - A roadmap for developing a successful AI strategy. **IEEE Access**. 9 (2021): 155826-155838. IF: 3.9.
- K. Wang, Z. Tekler, L. Cheah, D. Herremans, L. Blessing. 2021. Evaluating the Effectiveness of an Augmented Reality Game Promoting Environmental Action. **Sustainability**. 13(24), 13912. IF: 3.889.
- T. Phuong Ha Thi, Balamurali BT, G. Roig, Herremans D. 2021. AttendAffectNet – Emotion Prediction of Movie Viewers Using Multimodal Fusion with Self-attention **Sensors** - Special issue on Intelligent Sensors: Sensor Based Multi-Modal Emotion Recognition. 21(24), 8356. IF: 3.847.
- Balamurali BT, Hee KI, Kapoor S, Teoh OH, Teng SS, Lee KP, Herremans D, Chen JM. 2021. Deep Neural Network Based Respiratory Pathology Classification Using Cough Sound. **Sensors**. 21(16), 5555. IF: 3.847.
- A. Lee-Leon, C. Yuen, D. Herremans. 2021. Underwater Acoustic Communication Receiver Using Deep Belief Network. **IEEE Transactions on Communications**. 69(6), 3698-3708. IF: 6.166.
- Agres K., Schaefer R, Volk A, Van Hooren S, Holzapfel A, Bella Dalla, Müller M, de Witte M, Herremans D., Melendez Ramirez et al. 2021. Music, Computing, and Health: A roadmap for the current and future roles of music technology for healthcare and well-being. **Music & Science**.

DOI:10.1177/2059204321997709.

- Cheuk K.W., Anderson H., Agres K., Herremans D.. 2020. nnAudio: An on-the-fly GPU Audio to Spectrogram Conversion Toolbox Using 1D Convolution Neural Networks. **IEEE Access**. Vol. 8, 161981-162003 **IF: 3.9**.
- Balamurali BT, Hee Hwan Ing, Oon Hoe Teoh, Khai Pin Lee, Saumitra Kapoor, Dorien Herremans, Jer Ming Chen. 2020. Asthmatic versus healthy child classification based on cough and vocalised /a:/ sounds. **Journal of the Acoustical Society of America (JASA)** 148, EL253. **IF: 2.482**.
- Balamurali B.T., Chen J.M., Lui S., Herremans D. 2019. Towards robust audio spoofing detection: a detailed comparison of traditional and learned features. **IEEE Access**, vol. 7, pp. 84229-84241, 2019, doi: 10.1109/ACCESS.2019.2923806 **IF: 3.476**.
- Hee H.I., BT Balamurali, Karunakaran A., Herremans D., Teoh O.H., Lee K.P., Teng S.S., Lui S., Chen J.M. 2019. Development of Machine Learning for asthmatic and healthy voluntary cough - a proof of concept study. **Applied Sciences**. 9(14), 2833. **IF: 2.838**.
- Sturm B., Ben-Tal O., Monaghan U., Collins N., Herremans D., Chew E., Hadjeres G., Deruty E., Pachtet F.. 2019. Machine Learning Research that Matters for Music Creation: A Case Study. **Journal of New Music Research**. 48(1). pp 36-55. **IF: 1.819**.
- Chuan C.H., Agres K., Herremans D. 2018. From Context to Concept: Exploring Semantic Relationships in Music with Word2Vec. **Neural Computing and Applications**, Springer. 32(4), 1023-1036. **IF: 6**.
- Herremans D., Chew E. 2018. O.R. and music generation. **OR/MR Today**. Feb 5. DOI: 10.1287/orms.2018.01.03
- Lin K.W.E., Balamurali B.T., Koh E., Lui S., Herremans D. 2018. Singing Voice Separation Using a Deep Convolutional Neural Network Trained by Ideal Binary Mask and Cross Entropy. **Neural Computing and Applications**, Springer. 32, 1037–1050. DOI: 10.1007/s00521-018-3933-z. **IF: 6**.
- Sokolovskis J., Herremans D., Chew E. 2018. A Novel Interface for the Graphical Analysis of Music Practice Behaviours. **Frontiers in Psychology - Human-Media Interaction**. Vol. 9. **IF: 4.232**.
- Angus, N, Anderson, H, Chen, JM, Lui, S, Herremans, D. 2018. Minimally Simple Binaural Room Modelling Using a Single Feedback Delay Network. **Journal of the Audio Engineering Society**. 66(10):791-807. **IF: 0.98**.
- Angus, N, Anderson, H, Chen, JM, Lui, S, Herremans, D. 2018. Perceptual evaluation of measures of spectral variance. **Journal of the Acoustical Society of America**. 143(6):3300-3311. **IF: 2.482**.
- Herremans, D, Chuan, C.-H., Chew, E. 2017. A Functional Taxonomy of Music Generation Systems. **ACM Computing Surveys**. 50(5). 69:1-30. **IF: 14.324**.
- Herremans, D, Chew, E. 2017. MorpheuS: generating structured music with constrained patterns and tension. **IEEE Transactions on Affective Computing**. PP(1). **IF: 13.99**
- Cunha, N., Subramanian, A., Herremans, D. 2017. Generating guitar solos by integer programming. **Journal of the Operational Research Society**. 69:6, 971-985. **IF: 3.051**.
- Balliauw, M, Herremans, D, Palhazi Cuervo, D, Sörensen K. 2017. A variable neighbourhood search algorithm to generate piano fingerings for polyphonic sheet music. **International Transactions in Operations Research**. Special Issue on Variable Neighbourhood Search. 23:4:509–535. **IF: 3.610**.
- Agres, K, Herremans, D., Bigo, L, Conklin, C. 2017. The Effect of Harmonic Structure on the Enjoyment of Uplifting Trance Music. **Frontiers in Psychology – Cognitive Science** 7(1999) **IF: 4.232**.
- Herremans, D, Weisser S., Sörensen K., Conklin D. 2015. Generating structured music for bagana using quality metrics based on Markov models. **Expert Systems With Applications**. 42(21):7424–7435. **IF: 8.5**.
- Herremans, D, Sörensen K., Martens D. 2015. Classification and generation of composer-specific music using global feature models and variable neighborhood search. **Computer Music Journal**.

39(3):71-91. **IF: 0.688** (2015).

- Herremans, D, Martens D, Sørensen K. 2014. Dance Hit Song Prediction. **Journal of New Music Research – special issue on music and machine learning**. 43(3):291–302. **IF: 1.113**.
- Herremans, D, Sørensen K. 2013. Composing Fifth Species Counterpoint Music With A Variable Neighbourhood Search Algorithm. **Expert Systems with Applications**. 40(16):6427–6437. **IF: 8.5**.
- Herremans, D, Sørensen K. 2012. Composing first species counterpoint musical scores with a variable neighbourhood search algorithm. **Journal of Mathematics and the Arts**. 6(04):169-189. **IF: 0.32**

PhD Dissertation

- Herremans, D. 2014. **Compose \equiv Compute: Computer generation and classification of music through operation research methods**. University of Antwerp, Faculty of Applied Economics. ISBN 978-90-8994-114-5. 250p.
- Herremans, D. 2015. Compose \equiv Compute: Computer generation and classification of music through operations research methods **4OR**. 13(3):335-336. [PhD abstract] **IF: 1.545**.

Conference papers

- Melechovsky, J., Guo, Z., Ghosal, D., Majumder, N., Herremans, D., & Poria, S. (2023). Mustango: Toward Controllable Text-to-Music Generation. arXiv:2311.08355.
- K. W., Cheuk, Sawata, R., Uesaka, T., Murata, N., Takahashi, N., Takahashi, S., Herremans D., Mitsu-fuji, Y. 2023. DiffRoll: Diffusion-based Generative Music Transcription with Unsupervised Pretrain-ing Capability. Proceedings of **ICASSP**. Rhodes Island, Greece. (**CORE B**)
- N. Guo, J. Kong, D. Herremans. 2023. A Domain-Knowledge-Inspired Music Embedding Space and a Novel Attention Mechanism for Symbolic Music Modeling. *Proceedings of the 37th AAAI Conference on Artificial Intelligence*. Washington DC. (**CORE A***)
- J. Melechovsky, A. Mehrish, D. Herremans, B. Sisman. 2023. Learning accent representation with multi-level VAE towards controllable speech synthesis. *IEEE Spoken Language Technology (SLT) Workshop*. Doha, Qatar.
- Christopher Johann Clarke, Jatin Chowdhury, Balamurali B T, Prachee Priyadarshinee, Cindy Ming Ying Lim, Ivan Fu Xing Tan, Dorien Herremans and Jer Ming Chen. 2022. Computationally Efficient Physics Approximating Neural Networks for Highly Nonlinear Maps, *Proc. of the 2022 International Conference on Research in Adaptive and Convergent Systems (RACS)*.
- Kaliakatsos-Papakostas N., Bastas G., Makris D., Herremans D., Katsouros V., Maragos P.. 2022. A Machine Learning Approach for MIDI to Guitar Tablature Conversion. *Sound and Music Computing Conference (SMC)*.
- Turian J, Shier J, Khan HRaj, Raj B, Schuller BW, Steinmetz CJ, Malloy C, Tzanetakis G, Velarde G, McNally K, Henry M, Pinto N, Noufi C, Clough C, Herremans D., Fonseca E, Engel J, Salamon J, Esling P, Manocha P, Watanabe S, Jin Z, Bisk Y. 2022. *Proceedings of Machine Learning Research (PMLR): NeurIPS 2021 Competition Track*.
- Makris D., Guo Z, Kaliakatsos-Papakostas N., Herremans D. 2022. Conditional Drums Generation using Compound Word Representations. **EvoMUSART (EVO*)** - Lecture Notes in Computer Science, Vol. 13221, Springer.
- Guo R, Simpton I., Kiefer C., Magnusson T, Herremans D. 2022. MusIAC: An extensible generative framework for Music Infilling Application with multi-level Control. **EvoMUSART (EVO*)**, Springer LNCS.
- Cheuk K.W., Herremans D., Li Su. 2021. ReconVAT: A Semi-Supervised Automatic Music Transcrip-tion Framework for Low-Resource Real-World Data. *Proceedings of ACM Multimedia (ACMMM)*.

(CORE A*)

- Cheuk K.W., Luo Y.J., Benetos E., Herremans D.. 2021. Revisiting the Onsets and Frames Model with Additive Attention. *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*. (CORE A)
- Guo Z, Makris D., Herremans D. 2021. Hierarchical Recurrent Neural Networks for Conditional Melody Generation with Long-term Structure. *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*. (CORE A)
- Makris D., Agres K., Herremans D. 2021. Sen2Seq: A Conditional seq2seq Framework for Generating Lead Sheets with Sentiment. *Proceedings of the International Joint Conference on Neural Networks (IJCNN)*. (CORE A)
- T. Phuong Ha Thi, BT B, Herremans D., Roig G. 2021. AttendAffectNet: Self-Attention based Networks for Predicting Affective Responses from Movies. *Proceedings of the International Conference on Pattern Recognition (ICPR)*. Milano, Italy (virtual). (CORE B)
- Cheuk K.W., Luo Y.J., Benetos E., Herremans D. 2021. The Effect of Spectrogram Reconstructions on Automatic Music Transcription: An Alternative Approach to Improve Transcription Accuracy. *Proceedings of the International Conference on Pattern Recognition (ICPR)*. Milano, Italy (virtual). (CORE B)
- Guo R, Simposon I, Magnusson T, Kiefer C., Herremans D. 2020. A variational autoencoder for music generation controlled by tonal tension. *Joint Conference on AI Music Creativity (CSMC + MuMe)*.
- H.H. Tan, Luo Y.J., Herremans D. 2020. Generative Modelling for Controllable Audio Synthesis of Expressive Piano Performance. *Workshop on Machine Learning for Music Discover (ML4MD) as part of ICML*.
- H.H. Tan, Herremans D.. 2020. Music FaderNets: Controllable Music Generation Based On High-Level Features via Low-Level Feature Modelling. *Proceedings of the International Society of Music Information Retrieval (ISMIR)*.
- Luo Y.J., Cheuk K.W., Nakano T., Goto M., Herremans D.. 2020. Unsupervised disentanglement of pitch and timbre for isolated musical instrument sounds. *Proceedings of the International Society of Music Information Retrieval (ISMIR)*.
- Kin Wah C, Balamurali BT, Roig G, Herremans D. 2020. Regression-based music emotion prediction using triplet neural networks. *Proceedings of the International Joint Conference on Neural Networks (IJCNN - IEEE WCCI)*. Glasgow, Scotland. (CORE A)
- Kin Wah C, K. Agres, Herremans D. 2020. The impact of Audio input representations on neural network based music transcription. *Proceedings of the International Joint Conference on Neural Networks (IJCNN - IEEE WCCI)*. Glasgow, Scotland. (CORE A)
- Garg K., Singh A., Herremans D., Lall B. 2020. PerceptionGAN: Real world image construction from provided text through perceptual understanding. *Proceedings of 4th Int. Conf. on Imaging, Vision and Pattern Recognition (IVPR), and 9th Int. Conf. on Informatics, Electronics & Vision (ICIEV)*, 26-29 August 2020, Kitakyushu, Japan.
- Balamurali BT, Aslim E.J, Ng YShu Lynn, Kuo TLi Chuen, Chen JShihang, Herremans D., Ng LGuat, Chen J.M.. 2020. Acoustic prediction of flowrate: varying liquid jet stream onto a free surface. *Proceedings of the IEEE International Conference on Signal Processing and Communications (1.545)*, Bangladesh, India.
- Y.J. Luo, C.-C. Hsu, K. Agres, D. Herremans. 2020. Singing Voice Conversion with Disentangled Representations of Singer and Vocal Technique Using Variational Autoencoders. *Proceedings of the IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Barcelona, Spain. (CORE B)
- C. Kin Wai, Balamurali B T, G. Roig, D. Herremans. 2019. Latent space representation for multi-target

- speaker detection and identification with a sparse dataset using Triplet neural networks. *Proceedings of the IEEE Automatic Speech Recognition and Understanding Workshop (IEEE ASRU 2019)*. Singapore. (CORE C)
- T. Ha Thi Phuong, Herremans D., Roig G. 2019. Multimodal Deep Models for Predicting Affective Responses Evoked by Movies. *Proceedings of the 2nd International Workshop on Computer Vision for Physiological Measurement as part of ICCV*. Seoul, South Korea. 2019. **Best Student Paper Award**.
 - A. Lee-Leon, C. Yuen, D. Herremans. 2019. Doppler Invariant Demodulation for Shallow Water Acoustic Communications Using Deep Belief Networks. *Proceedings of the 16th IEEE Asia Pacific Wireless Communications Symposium (IEEE APWCS)*. Singapore.
 - K. Agres, S. Lui, D. Herremans. 2019. A novel music-based game with motion capture to support cognitive and motor function in the elderly. *Proceedings of IEEE Conference on Games*, London, UK.
 - Y.-J. Luo, K. Agres, D. Herremans. Learning Disentangled Representations of Timbre and Pitch for Musical Instrument Sounds Using Gaussian Mixture Variational Autoencoders. *Proceedings of IS-MIR*. Delft, The Netherlands. 2019.
 - D. Herremans, E. Chew. Towards emotion based music generation: A tonal tension model based on the spiral array. *Proceedings of Cognitive Science (CogSci)*. Montreal. 2019.
 - A. Lee-Leon, C. Yuen, D. Herremans. A Hybrid Fuzzy Logic-Neural Network Approach For Multipath Separation Of Underwater Acoustic Signals. *IEEE 89th Vehicular Technology Conference*. Kuala Lumpur. 2019. (CORE B)
 - Kin Wah C, Balamurali BT, Roig G, Herremans D. 2018. Blacklisted speaker identification using triplet neural networks. *MCE2018: The 1st Multi-target speaker detection and identification Challenge Evaluation*. MIT.
 - Chuan C.H., Herremans D. 2018. Modeling temporal tonal relations in polyphonic music through deep networks with a novel image-based representation. *Proceedings of the 32th AAAI Conference on Artificial Intelligence*. New Orleans, US. 2018. (CORE A*).
 - Agres, K, Herremans, D. 2018. The Structure of Chord Progressions Influences Listeners' Enjoyment and Absorptive States in EDM. *Proceedings of the 15th International Conference for Music Perception and Cognition (ICMPC)*. Sydney, Australia.
 - Agres A., Herremans D. 2017. Music and Motion-Detection: A Game Prototype for Rehabilitation and Strengthening in the Elderly. *Proceedings of the IEEE International Conference on Orange Technologies (IEEE ICOT)*. Singapore. 2017.
 - Herremans D., Bergmans T. 2017. Hit Song Prediction Based on Early Adopter Data and Audio Features. *The 18th International Society for Music Information Retrieval Conference (ISMIR) - Late Breaking Demo*. Suzhou, China. 2017.
 - Herremans D., Lauwers W. 2017. Visualizing the evolution of alternative hit charts. *The 18th International Society for Music Information Retrieval Conference (ISMIR) - Late Breaking Demo*. Suzhou, China. 2017.
 - Herremans D., Chuan C.-H. 2017. Modeling music with Word2vec. *Proceedings the First International Workshop for Music and Deep Learning, joint with IJCNN*. Anchorage, US. 2017.
 - Herremans D., Yang S., Chuan C.-H., Barthet M., Chew E. 2017. IMMA-Emo: A Multimodal Interface for Visualising Score- and Audio-synchronised Emotion Annotations. *Proceedings Audio Mostly (ACM)*. London, UK. 2017.
 - Herremans, D, Chuan, C.-H. 2017. A multi-modal platform for semantic music analysis: visualizing audio- and score-based tension. *Proceedings of the 11th International Conference on Semantic Computing IEEE ICSC 2017*. San Diego, US. 2017.
 - Herremans, D, Chew E. 2016. MorpheuS: Automatic music generation with recurrent pattern constraints and tension profiles. *Proceedings of the IEEE TENCON*. Singapore. 2016. (CORE C)

- Cunha, N, Subramanian, A, Herremans, D. 2016. Uma abordagem baseada em programação linear inteira para a geração de solos de guitarra. *Proceedings of the XLVIII Simpósio Brasileiro de Pesquisa Operacional (SBPO)*. Vitoria, Brasil.
- Agres, K, Bigo, L, Herremans, D, Conklin, D. 2016. The Effect of Repetitive Structure on Enjoyment in Uplifting Trance Music. *Proceedings of the 14th International Conference for Music Perception and Cognition (ICMPC)*. San Francisco, US. 280-282.
- Herremans, D, Chew, E. 2016. Tension ribbons: quantifying and visualising tonal tension. *Proceedings of the Second International Conference on Technologies for Music Notation and Representation (TENOR)*. Cambridge, UK. 8–18.
- Herremans, D, Sörensen K. 2013. FuX, an Android app that generates counterpoint. *Proceedings of the IEEE Symposium on Computational Intelligence for Creativity and Affective Computing (CICAC)*. Singapore. 48-55.
- Herremans, D, Sörensen, K, Conklin, D. 2014. Sampling the extrema from statistical models of music with variable neighbourhood search. *Proceedings of ICMC–SMC*. Athens. 1096–1103.

Book

Herremans, D. 2010. *Drupal 6: Ultimate Community Site Guide*. Sun Flare Ltd, Switzerland, ISBN 978-2839904902 (over 4,000 copies sold).

Book Chapters

- P. Kroonenberg, D. Herremans. 2021. Musical stylometry: Characterisation of music. in: **Multivariate Humanities**. Springer. ISBN 978-3-030-69150-9.
- Agres, K, Bigo, L, Herremans, D.. 2019. The impact of musical structure on enjoyment and absorptive listening states in trance music. **Music and Consciousness II**. Oxford University Press.
- Herremans, D, Martens, D, Sörensen, K. 2015. Composer classification models for music-theory building. **Computational Music Analysis**, Editors: David Meredith, Springer, Switzerland, ISBN 978-3-319-25929-1 (Print) 978-3-319-25931-4 (Online).
- Balliauw, M , Herremans, D, Palhazi Cuervo, D, Sörensen. 2015. Generating fingerings for polyphonic piano music with a tabu search algorithm. **Mathematics and Computation in Music. Lecture Notes in Computer Science**, Springer International Publishing, 9110:149-160. IF: 0.302, STJ: Q2 (“Computer Science”), Q4 (“Theoretical Computer Science”)

KEYNOTES, INVITED TALKS, GUEST LECTURES AND SEMINARS

2023 *Panel member: Computational research in music*. Music Research Symposium. YST, NUS, Singapore. 21 Feb 2023.

2022 *Panel member: Enhancing music creativity with MIR*. 23rd International Society for Music Information Retrieval Conference. India. 7 Dec. 2022.

- *Controllable music generation: from rules to machine learning*. Guest Lecture. University of Lille, France. 28 Nov. 2022.
- *Panel member: Webinar Inclusion in AI: Is There a Singapore Model?*. S. Rajaratnam School of International Studies, Nanyang Technological University, Singapore. 20 Oct. 2022.
- *Automatic Music Generation*. Guest lecture for Music Cognition (NUS - YST). October 12th, Singapore. 2022.

Modelling music – from rule based models to deep learning. October 2022. Guest lecture for Sound and Music Computing course. March, National University of Singapore (NUS), Singapore.

- *Controllable deep music generation with emotion*. Keynote talk. 14 September 2022. 3rd Conference on AI Music Creativity (AIMC). Keynote. Virtual.
 - *Controllable deep music generation with emotion*. dialogues1: probing the future of creative technology. Subject: "Interaction with generative music frameworks". KTH, Sweden. 31 Mar 2022.
 - *Modelling music – from rule based models to deep learning*. March 2022. Guest lecture for Sound and Music Computing course. March, National University of Singapore (NUS), Singapore.
- 2021** *Music generation - From musical dice games to controllable AI models*. WIMIR Project Guides: talk and fireside Chat. Women in Music Information Retrieval. 29 Oct 2021.
- *Music generation - From musical dice games to controllable AI models*. AI Applications in Music Webinar. Singapore Computer Society. 28 Oct 2021.
 - *Automatic Music Generation*. Guest lecture for Music Cognition (Yale-NUS). October, Singapore. 2021.
 - *Automatic Music Generation*. Guest lecture for Music Cognition (National University of Singapore - Young Siew Toh Conservatory). October, Singapore. 2021.
 - *Workshop – "Dogs vs. Cats: Create an AI algorithm to distinguish Dogs from Cats"*. Hwa Chong Institution, Singapore. 4th May 2021.
 - *Workshop – "Dogs vs. Cats: Create an AI algorithm to distinguish Dogs from Cats"*. AI workshop prematriculated students. SUTD, Singapore. 2021.
 - *Modelling music – from rule based models to deep learning*. 2021. Guest lecture for Sound and Music Computing course. March 22th, National University of Singapore (NUS), Singapore.
- 2020** *Controllable music generation: from MorpheuS to deep networks*. 2020. Keynote talk. December 15th, 15th Digital Music Research Network Workshop (DMRN15+), Queen Mary University of London.
- *AI Music generation*. 2020. Guest lecture for Science of Sound course. December, Singapore University of Technology and Design (SUTD), Singapore.
 - *Automatic Music Generation*. Guest lecture for Music Cognition (National University of Singapore - Young Siew Toh Conservatory). October, Singapore. 2020.
 - *Panel member: Frontiers of Music and Artificial Intelligence panel*. 2020. Invited panel member. Ars Electronica Festival for Art, Technology and Society, Linz, Austria. 2020.
 - *Modeling music with machine learning, a music generation perspective*. 2020. Guest lecture for Sound and Music Computing course. March 16th, National University of Singapore (NUS), Singapore.
- 2019** *The AI revolution - from chess computers to hit song prediction and self-driving cars*. Guest seminar at Nanyang Junior College. November 12th, Singapore. 2019.
- *Automatic Music Generation*. Guest lecture for Music Cognition (National University of Singapore - Young Siew Toh Conservatory). October 29th, NUS, Singapore. 2019.
 - *Modeling music with machine learning, a music generation perspective*. 2019. Guest lecture for Sound and Music Computing course. March 18th, National University of Singapore (NUS), Singapore.
 - *An Augmented Reality Game for Climate Change Awareness*. SUTD-MIT International Design Centre Summit. January 14th, Expo, Singapore. 2019.
 - *Artificial Intelligence and Music: Learnings for talent leaders*. TechHR conference. February 28th, Marina Bay Sands, Singapore. 2019.
- 2018** *SUTD Game Lab*. Town Hall talk. November 21st, SUTD, Singapore. 2018.
- *Automatic Music Generation*. Guest lecture for Music Cognition (NUS - YST). October 31th, Singapore. 2018.
 - *The medium: Augmented reality games*. AR Games for Climate Change! Workshop. September 24th, SUTD, Singapore. 2018.
 - *Music and AI: Generating music and more!*. Invited talk. One-North Festival. September 7th, Singa-

- pore. 2018.
- *Modeling Music with LSTMs and word2vec*. Invited talk. Workshop on Human level general AI. June 7th. Singapore. 2018
 - *Transforming the music industry with data*. Invited Conference Talk. April 11th, Women in Data Science Conference, Singapore. 2018.
 - *Modeling music with machine learning, a music generation perspective*. Guest lecture for Sound and Music Computing course. March 22nd, National University of Singapore (NUS), Singapore. 2018.
 - *Applications of AI in music*. Invited talk. Music Research Symposium. February 2nd, A*STAR, Singapore. 2018.
 - *Panel Member: Women in Data Science Conference*, Singapore, Panel on Women in Music and Research. April 11th 2018.
 - *Deep Learning Demystified / Image classification with DIGITS*, NVIDIA Deep Learning Institute Workshop, SGInnovate, Singapore, January 19th, 2018.
- 2017** *Morpheus: structured music generation with pattern detection and tension*. Invited talk. Jukedeck. Lunch & Learn seminar, London, UK, May 31th, 2017.
- *Machine learning and optimization for cutting edge applications in digital music*. Invited Seminar – Singapore University of Technology and Design (SUTD), Singapore, April 27th, 2017.
- 2016** *Machine learning and optimization applied to digital music*. Invited seminar – Agency for Science Technology and Research (A*STAR), Singapore, November 21th, 2016.
- *Morphing Music According to a Long-term Tension Profile and Detected Patterns*. Invited Seminar – Institut de Recherche et Coordination Acoustique/Musique (IRCAM), Paris, France, April 20th, 2016.
 - *Morpheus: generating music with structure*. Stimulus talk at Dagstuhl Seminar – Computational Music Structure Analysis, Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Germany, February 28th–March 4th, 2016.
 - *Digital representations of music & Automatic music generation*, guest lecture for the Music and speech perception course, Queen Mary University of London, UK, February 2016.
- 2015** *Generating structured music using operations research methods*, Complex Systems Seminar Series, School of Mathematical Sciences, Queen Mary University of London, UK, June 19th, 2015.
- *Music and operations research: applications in automatic generation music and dance hit prediction*, Seminar, Department of Computer Science, Research Group SCALAB, Universidad Carlos III de Madrid, Spain, November 27th, 2015.
 - *Panel Member: ASyMMuS Workshop on Audio-Symbolic Music Similarity Modelling*, British Library, London, July 8th 2015.
 - *Generating structured music with local optimisation and machine learning*, Seminar, Department of Computer Science, Imperial College London, UK, October 14th, 2015.
 - *An automatic composition system for structured music based on optimization and machine learning*, Seminar, Harvey-Mudd College, Claremont, US, July 23rd, 2015.
 - *From music theory to machine learning for evaluating generated music*, Seminar, Department of Music (part of summer school), University of San Diego (UCSD), San Diego, US, July 17th, 2015.
 - *Setting Optimal Parameters Of Metaheuristic Algorithms*, guest lecture in Doctoral Course on Metaheuristics, University of Antwerp, Belgium, April 8, 2015.
- 2014** *Setting Optimal Parameters of a VNS for Music Generation*, guest lecture in Doctoral Course on Metaheuristics, University of Antwerp, Belgium, April 10, 2014.
- 2013** *Classifying And Generating Composer Specific Music*, Research Seminar, Queen Mary University, London, UK, Dec 6, 2013.
- 2012** *Classifying And Generating Composer Specific Music*, Research Seminar, Department of Engineering

PRESENTATIONS AT CONFERENCES

Note: for invited talks, please see previous section.

- 2019** *A novel music-based game with motion capture to support cognitive and motor function in the elderly.* Proceedings of the IEEE Conference on Games. Queen Mary University of London, UK. 2019.
- 2018** *Towards emotion based music generation: A tonal tension model based on the spiral array.* The 32th Cognitive Science Conference, Montreal, Canada. 2018.
- 2017** *Hit Song Prediction Based on Early Adopter Data and Audio Features.* The 18th International Society for Music Information Retrieval Conference (ISMIR) - Late Breaking Demo. Suzhou, October 23-27, China. 2017.
- *Visualizing the evolution of alternative hit charts.* The 18th International Society for Music Information Retrieval Conference (ISMIR) - Late Breaking Demo. October 23-27, Suzhou, China. 2017.
 - *Modeling music with Word2vec.* First International Workshop on Music and Deep Learning joint with IJCNN, Anchorage, US, May 18-19, 2017.
- 2016** *Morpheus: automatic music generation with recurrent pattern constraints and tension profiles.* IEEE TENCON, November, Singapore, September 21-24, 2016.
- *Clouds and vectors in the spiral array as measures of tonal tension.* 14th International Conference for Music Perception and Cognition (ICMPC), San Francisco, US, July 5-9, 2016.
 - *Music generation with structural constraints: an operations research approach,* ORBEL 30 (Belgian Association of Operations Research), Catholic University of Leuven, Louvain-la-Neuve, Belgium, January 27-28, 2016.
- 2015** *Generating Fingerings for Polyphonic Piano Music with a Tabu Search Algorithm,* The Fifth Biennial International Conference on Mathematics and Computation in Music (MCM 2015), Queen Mary University of London, UK, June 22-25, 2015.
- *Generating music with an optimization algorithm using a Markov based objective function,* ORBEL 29 (Belgian Association of Operations Research), University of Antwerp, Belgium, Feb 5-6, 2015.
- 2014** *Markov Based Quality Metrics For Generating Structured Music With Optimization Techniques,* DMRN+9: Digital Music Research Network One-day Workshop 2014, Queen Mary University, London, UK, Dec 16, 2014. – **Funded by Lrn2Cre8 FP7**
- *Sampling the extrema from statistical models of music with neighbourhood search,* SMC/ICMC - 40th International Computer Music Conference joint with the 11th Sound & Music Computing conference, Athens, Greece, September 14-20, 2014.
 - *Composing counterpoint music with variable neighbourhood search,* Bridges, Seoul, South-Korea, August 14-18, 2014. (invited speaker in JMA session)
 - *Sampling and statistical models,* Workshop on EDM, Sony Computer Science Laboratory, Paris, France, July 10-11, 2014. – **Funded by Lrn2Cre8 FP7**
 - *First species counterpoint music generation with VNS and vertical viewpoints,* ORBEL 28 (Belgian Association of Operations Research), University of Mons, Belgium, Jan 30-31, 2014.
- 2013** *First species counterpoint generation with VNS and vertical viewpoints,* DMRN+8: Digital Music Research Network One-day Workshop 2013, Queen Mary University, London, UK, Dec 17, 2013. – **Funded by Lrn2Cre8 FP7**
- *Dance Hit Song Science, Workshop on Music and Machine Learning (MML),* ECML/PKDD 2013, Prague, Czech-Republic September 23, 2013
 - *Classifying and Generating Composer Specific Music, European Conference on Data Analysis (ECDA),*

Luxembourg, June 10–12, 2013.

- *Fux, an Android App that Generates Counterpoint Music*, IEEE SSCI - Symposium on Computational Intelligence for Creativity and Affective Computing (CICAC), Singapore, April 16–19, 2013.

2012 *Composing Counterpoint Music With VNS*, EU/ME meeting 2012, Copenhagen, Denmark May 10–11, 2012.

- *Composing Counterpoint Music With A Variable Neighbourhood Search*, ORBEL 26 (Belgian Association of Operations Research), Université Libre de Bruxelles, Brussels, Belgium, Feb 2–3, 2012.
- *Composing Counterpoint Music With Variable Neighbourhood Search*, EURO 2012, Vilnius, Lithuania Jul 8–11, 2012.

2010 *A Variable Neighbourhood Search Algorithm for Composing First Species Counterpoint Musical Fragments*, Doctoral Day, University of Antwerp Applied Economics, Antwerp, Belgium, Nov 23, 2010.

COURSES TAUGHT

Please note: guest lectures and seminars are listed in the previous section.

2017-... Courses taught at Singapore University of Technology and Design

- Computational Data Science (2018, 2019, 2020, 2021, 2022, 2023)
- Artificial Intelligence (2020, 2021, 2022)
- Game Design (2018)
- Capstone (2018, 2019, 2023)
- Database (Big Data technologies) (2017, 2023)

Courses that I developed alone from scratch:

1. 50.038 Computational Data Science (UG, ISTD)

This course was first developed by me in 2018 for term 6 in ISTD. It aims to take a unique holistic approach to data science and guide students from designing a system, gathering data, wrangling with data in Unix, all the way to training deep neural network models. The course is popular and expanded from 2 cohorts to 3 cohorts in 2019.

2. Workshops

In addition to teaching UG courses, I also teach occasional workshops for the AI program, such as the popular workshop: Cats versus Dogs.

2010–2015 Courses co-taught at the University of Antwerp, Belgium

- Technological Project Management
- Seminar Applied Mathematics (Matlab)
- Supply Chain Management
- Operations Management
- Total Quality Management
- Integration Project Business Engineering.

2006–2008 Courses taught at Les Roches, Switzerland

- 3D Computer Animation (Course developed from scratch for the MBA programme.)
- Principles of Computer Applications (Bachelor students)

SUPERVISION OF PHD STUDENTS

Graduated **Singapore University of Technology and Design**

- Natalie Angus. 2018. *Binaural Auralization*, main supervisor. (co-supervisor: Dr. Simon Lui, Tencent Music).
- Pham Quang Hieu. 2020. *Data-driven 3D Scene Understanding*, main supervisor.
- Abigail Leon. 2020. *Underwater Acoustics Communication with deep learning*. co-supervisor.
- Ha Thi Phuong Thao. 2022. *Multimodal Deep Neural Networks for Direct Affective Video Content Analysis and Applications*, main supervisor.
- Cheuk Kin Wah. 2022. *Automatic Music Transcription: From Supervised to Un-supervised Learning; Single to Multi-Instrument*, main supervisor.
- Christopher Johann Clarke Shirui. 2023. *Informed Neural Methods for low Latency Signal Emulation in Virtual Analog Modelling*, co-supervisor.

Ongoing **Singapore University of Technology and Design**

- Jan Melechovsky – Modelling medical and accented speech
- Kyra Wang – Affective conversational agents
- Perry Lam Wee Hian – Sparsity in speech synthesis models
- Joel Ong – AI for portfolio optimization
- Geeta Puri – EdTech

2021–current **Queen Mary University of London, UK**

- Pedro Sarmiento: Musical Smart Cities (co-supervisor)

JURY MEMBER OF PHD COMMITTEES

Ongoing - **Singapore University of Technology and Design**

- Chin Wai Kit (Daniel), Qualifying and Preliminary exam committee Chair (2023).
- Zheng Shuang, Qualifying and Preliminary exam committee Member (2023).
- Tan Yu Xiang, Qualifying and Preliminary exam committee Member (2023).
- Ho Ngai Lam (He Yilin), Qualifying and Preliminary exam committee Member (2021)
- Li Menglin, Qualifying and Preliminary exam committee Member (2021)
- Deepanway Ghosal, Qualifying and Preliminary exam committee Member (2020)
- Lucas Hui Yau Wai, Qualifying & Preliminary exam committee Member (2019)
- Thilini Cooray: Qualifying Exam committee Member (2018)
- Wei Han: Qualifying & Preliminary Exam Committee Member (2021-...)
- Yeo Shun Yi: Qualifying Exam committee Member (2021-...)
- Johari Kritika: Qualifying Exam committee Member (2021-...)
- Du Zongyang: Qualifying & Preliminary Exam Committee Member (2021-...)
- Chia Yew Ken: Qualifying & Preliminary Exam Committee Member (2022-...)
- Lee Ka Wei (Fiona): Qualifying & Preliminary Exam Committee Chair (2024-...)

National University of Singapore

- Jingwei Zhao, TEC & Preliminary Exam committee member. 2022-...

Graduated - **Singapore University of Technology and Design**

- Gao Jie: Qualifying, Preliminary, and Final Exam Committee Member (2020-2024)
- Chen Hui: Qualifying & Preliminary Exam Committee Member & Final Exam Jury (2020-2023)
- Lu Xu: “Extract Entity-Oriented Structured Knowledge from Unstructured Text” - Qualifying, Preliminary, & Final Exam Committee Member (2020-2022).
- Liu Junhua, Qualifying committee Member - Final thesis jury (2019-2022)
- Sakshi Sunil Udeshi, “Directed Blackbox Testing for Machine Learning beyond Accuracy”. Qualifying exam committee Member - Final Thesis Jury (2019-2022)
- Ng Aik Beng: ‘Human-AI Collaboration: Type theoretic composition, conglomeration and communication of intents for an AI-augmented knowledge workforce’ – Preliminary Exam Committee Member (2019), Final Thesis Committee/Jury (2020)
- Hans Ivander: ‘Efficient Room Acoustic Modeling’ – Final Thesis Committee/Jury (2018)
- Atima Tharatipyakul: Preliminary Exam Committee Member (2018-2020), TEC member, Final Thesis Committee/Jury
- Nguyen Thi Ngoc: TEC member, Qualifying, Preliminary, and Final Exam Committee Jury (2018-2021)
- Katherine Fennedy Mety: TEC member, Qualifying & Preliminary exam committee, and Final Exam Jury (2018-2021).
- Penny Chong, ‘Towards a Better Integration of Explainability and Outlier Detection in Deep Neural Networks’, TEC member, and Final Exam Committee Jury (2020-2021).
- Mu Wenchuan: Final exam committee (2022)

Sorbonne University / IRCAM, Paris (FR)

- Tristan Carsault: “Introduction of musical knowledge and qualitative analysis in chord extraction and prediction task with machine learning”, Final PhD Jury member (2020)
- Adrien Bitton: “Meaningful audio synthesis and musical interactions by representation learning of sound sample databases. ”, Final PhD Jury member (2021)

University of Auckland (NZ)

- Tharindu Kaluarachchi: “Investigating the Human-Centered Machine Learning Approach with Non-AI-Experts”, Final PhD examiner (2022)

SUPERVISION OF MASTERS THESES

2018–... **Singapore University of Technology and Design**

- Keith Goh. AI and finance. 2020-2022.
- En Yan Koh. Affective Computing. 2019-2021.
- Loke Jun Ming. Gamifying mood diary. 2020-2021.
- Fajilatun Nahar. Visualising and classifying musical cultures. 2018-2020.

- Zou Yanzhao. NLP for FinTech and Bitcoin price prediction. 2019-2022.
- Xiao Tianqi. Self-Supervised Diffusion Model for Speech Enhancement. 2022-2023.

2015–2017 **Queen Mary University of London, UK**

- Generating music for computer games (Li Tang)
- A guitar fingering algorithm (Kairan Liao)

2010–2015 **University of Antwerp, Belgium**

- A variable neighbourhood search algorithm to generate piano fingerings for polyphonic sheet music (Matteo Baliauw)
 - won ORBEL award best Master thesis in Operations Research Belgium 2014
 - nominated for Pop Music Thesis Award 2014
 - resulted in publications in “International transactions of OR” and “Lecture notes in computer science”
- Data mining & music - Hit prediction (Tom Bergmans)
 - nominated for Pop Music Thesis Award 2014
 - journal publication
- Generating neoclassical guitar music with metaheuristics (Max Hein)
- Supply chain management and vendor managed inventory (Malco Cambula)
- Visualizing the evolution of alternative hit songs over time (Wim Lauwers)
 - conference paper
- Developing a cello fingering algorithm (Dries Van Overloop)

RESEARCH GROUPS

2017-present **AMAAI - Audio Music and AI Lab**

Lab leader, ISTD, Singapore University of Technology and Design

2021-present **AlFi - AI for FinTech**

Lab leader, ISTD, Singapore University of Technology and Design

2017-present **Audio Research Lab** led by prof. Jer-Ming Chen

Singapore University of Technology and Design

2017-2020 **Music Cognition Lab**

Institute for High Performance Computing, A*STAR

2015–2017 **MuPaE – Music Performance and Expression Group**

Center for digital music (C4DM), Queen Mary University of London

2010–2016 **ANT/OR – University of Antwerp Operations Research Group**

University of Antwerp, Belgium

2013–2015 **Music Informatics Group**

Universidad del País Vasco UPV/EHU, San Sebastián, Spain

2013–2015 **Lrn2cre8**, FP7 European project – research collaborator

WORKSHOPS, DOCTORAL COURSES AND SUMMER SCHOOLS

2019 Lorentz Workshop – Music, Medicine, and Computing. Leiden, The Netherlands.

2016 ZiF Workshop – From Computational Creativity to Creativity Science – Center for

Interdisciplinary Research, Bielefeld University, Germany

- 2016 Dagstuhl Seminar – Computational Music Structure Analysis, Schloss Dagstuhl – Leibniz-Zentrum für Informatik, Germany
 - 2015 Lorentz Workshop – Music Similarity: Concepts, Cognition and Computation, Leiden, The Netherlands
 - 2014 Workshop Deep Learning – 2-day workshop on Deep Learning for Sound and Music Processing, Austrian Research Institute for Artificial Intelligence (OFAI), Vienna, Austria
 - 2014 Computational Music Analysis – *The Sound and Music Computing Summer School*, Athens, Greece
 - 2013 Advanced Data Mining – (greatest distinction) with Prof. Dr. D. Martens, *University of Antwerp*, Antwerp, Belgium
 - 2011 Optimization: Special Topics – (distinction) with Prof. Dr. F. Spieksma, *KULeuven*, Leuven, Belgium
 - 2010 Advanced Optimization Techniques – (greatest distinction) with Prof. Dr. K. Sörensen, *University of Antwerp*, Antwerp, Belgium
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IN THE PRESS (EXTERNAL)

(Click the title to view the original item)

Podcasts

- Artificial Intelligence and You - Episode 88. Peter Scott. 14 February 2022.
- Meet My lab: 'Mathematics and Music - A Synergetic Duo for Automatic Music Generation'. European Research Network. 2021.
- QD: Audacity to Rise Above - Ep.3. The Next Big Thing, Canada. Spotify. Apple Podcasts. 2021.
- 'Subject to' Podcast interview. Spotify. Youtube. 2021.

Press articles

- The spectrum behind asthma. NRF Magazine. June 2022.
- Inspiring Women in Science: An Interview with Dr. Dorien Herremans. 19/02/2021.
- Best practices and success principles for PhD students and early career researchers. Euroscientist. 30/4/2020.
- A Machine Successfully Predicted the Hit Dance Songs of 2015, *Motherboard*, *Vice.com*, 17/12/2015.
- LEADING WOMEN IN TECH & DESIGN: At the cutting edge of music and AI, *wearesutd*, 11/01/2019.
- Why trance works. DJ Magazine. 25/11/2020.
- I don't expect to see musicians being replaced by machines anytime soon: Dorien Herremans, *People Matters*, 29/01/2019.
- The science behind chart success, *Flanders Today*, 12/12/2014.
- Dancehits almaar sneller en luider, *Nieuwsblad*, 23/11/2014.
- Universiteit Antwerpen ontwikkelt een app om hits te herkennen, *De Standaard*, 23/11/2014.
- Onderzoek Antwerpen "Een grappige tool, dat wel", *Gazet Van Antwerpen*, 23/11/2014.
- Software maakt piano spelen voortaan een stuk makkelijker, *Knack*, 8/9/2014.
- Software als hulpmiddel om pianostukken in te studeren, *Metro*, 08/09/14.

- App genereert oneindige muziek van bekende componisten, *De Standaard*, 21/02/2013.
- Oneindig klassieke muziek van bekende componisten dankzij Belgische app, *De Morgen*, 21/02/2013.
- Ga Beethoven achterna met nieuwe Fux-app, *Gazet Van Antwerpen*, 21/02/2013.
- App genereert oneindige muziek van grote componisten, *Knack*, 21/02/2013.

Radio

- Comment prédire qu'une chanson sera un tube?, *France Info (radio interview)*, 23/11/2014.
- FuX-app genereert muziek in de stijl van Bach, Beethoven en Haydn, *Interview Radio 2*, 23/02/2013.

TV

- Channel News Asia Documentary: Algorithms: Ep. 1 Rage Against The Machine. Featuring MorpheuS music generation algorithm. 15/10/2018.
- Op een wetenschappelijk verantwoorde manier te weten komen of je een dance-hit hebt gemaakt of niet?, *Talkshow: Reyers Laat*, 01/12/2014.
- App voorspelt of nummer hit wordt, *VTM tv-news*, 22/11/2014.
- Beethoven met een streepje Bach?, *CampusTV*, 6/11/2013.

APPOINTMENTS AND COMMITTEE MEMBERSHIPS

Editor:

- Proceedings of Workshop on Deep Learning for Audio and Music, joint with IJCNN

Guest editor:

- Neural Computing and Applications (Springer) IF: 6 - Special issue on deep learning for music and audio
- Proceedings of Machine Learning Research - Special issue on NeurIPS's HEAR Challenge

Appointments:

- Scientific Advisory Committee for AI.SG, AI Governance pillar
- Joint appointment – Institute of High Performance Computing, A*STAR (2017-2020)
- Jury member – AI Song Contest (2022-...)
- Academic board member – AI Business School, Zürich, Switzerland (2020-...)
- Advisory board member – International Artificial Intelligence and Quantum Technology (AIQT) Foundation, Davos, Switzerland (2020-...)
- NVIDIA Deep Learning Instructor – NVIDIA Deep Learning Academy (2017-2019)

Society membership

- **Senior Member** of the Institute of Electrical and Electronics Engineers (IEEE)
- Member, ACM
- Member, Singapore Institute of Directors (SID).
- Member, The Corporate Governance Institute.

Committees:

- Research committee co-chair, Singapore University of Technology and Design. 2023-...
- Graduate committee, Singapore University of Technology and Design. 2019-2023
- Environment, Health, and Safety committee, Singapore University of Technology and Design. 2023-...

- Cyberphysical campus task force, Singapore University of Technology and Design. 2020-...
- Associate faculty evaluation committee, University of Oslo (2021-2022).
- Cyber & Data Security Principal Risk Committee, Singapore University of Technology and Design. 2021-...
- Educational Innovation and Digital Learning Principal Risk Committee, Singapore University of Technology and Design. 2021-...
- Undergraduate committee, Singapore University of Technology and Design. 2017-2019. – international programmes representative.
- DBS/SUTD Steering Committee. 2018-2020.
- Capstone committee, Singapore University of Technology and Design. 2017.
- Elected member of Faculty Council of Department of Applied Economics, University of Antwerp. 2013-2015.

Organizing committee member

- main organizer of International Workshop on Deep Learning for Music (together with Prof. dr. Ching-Hua Chuan, UNF). Workshop held in conjunction with the International Joint Conference on Neural Networks (IJCNN) in Anchorage (May 14-18th, 2017)
- Music Research Symposium at A*STAR, 2nd February 2018.
- ORBEL29: 29th Belgian Conference on Operations Research.
- ICASSP 2022, Singapore.
- HEAR challenge - Neural Audio AI, NeurIPS. 2021.

Program committee member

- ML4MD2021, Machine Learning for Media Discovery Workshop, ICML. 2021.
- International Conference on Mathematics and Computation in Music (MCM)
- CSMC + MuMe 2020 - Joint Conference on AI Music Creativity. 2020 - current.
- Conference of the International Society of Music Information Retrieval (ISMIR). 2015-current.
- International Conference on Principle and Practice of Constraint Programming (CP). 2015-current.
- International Workshop on Music and Machine Learning MML (part of ECML/PKDD)
- International Workshop on Cognitive Robotics and Computational Creativity (part of IEEE Conference on Robotic Computing)
- International Workshop on Deep Learning and Music (part of IJCNN)
- Conference on Computer Simulation of Musical Creativity
- International Conference on. Orange Technologies (2017)
- NeurIPS workshop on Machine Learning for Audio (2018)
- Scientific committee member of Worldwide Music Conference (from 2020)

OTHER ACADEMIC & RESEARCH SERVICE

Reviewer:

- European Journal of Operations Research (EJOR)
- Expert Systems With Applications
- ACM Transactions on Intelligent Systems and Technology
- IEEE/ACM Transactions on Audio, Speech and Language Processing
- IEEE Transactions on Multimedia

- IEEE TENCON
- Journal of New Music Research
- Knowledge Based Systems
- Journal of New Music Research
- Computer Music Journal
- Journal of Mathematics and Music
- International Conference on Fuzzy System and Data Mining (FSDM)
- International Workshop on Musical Metacreation (MUME)
- Springer book on Computational Music Analysis
- ...

Mentor - WIMIR mentorship programme for Women in Music Information Retrieval.

Mentor - UKRI Centre for Doctoral Training in Artificial Intelligence and Music (AIM - <https://www.aim.qmul.ac.uk/>). From 2020 - current.

Member of Athena Swan (QMUL) program by the Equality Challenge Unit to advance women's careers and promote equality in Science, Engineering, Maths and Medicine.

Expert evaluator for engineering panel for the evaluation of the Marie Skłodowska-Curie Action "Innovative Training Networks" (ITN) (REA Unit A1). From 2019.

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