

# Dr Jordan J. Bird

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## Professional Experience

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### Nottingham Trent University | Clifton, Nottinghamshire Senior Lecturer in Computer Science | 05/2023 - Present

**Senior Lecturer** on the *Teaching & Research* pathway. Duties involve module design and delivery, student supervision (BSc, MSc, PhD), conducting and publishing research, external research grant writing. **Deputy REF Co-ordinator** for B11. Duties involve supporting the REF process towards 2029.

**Module Leader** for Understanding LSEP in Data Science (*New module – lecture design, assessment design, and delivery*). **Teaching** for Applied AI and Data Mining, Big Data & Its Infrastructure, Service Oriented Cloud Technologies, Introduction to Computers and Technology. Guest lecturer for Artificial Intelligence.

### Nottingham Trent University | Clifton, Nottinghamshire Lecturer in Computer Science (Hourly Paid) | 04/2022 - 05/2023

Main supervisor for 8 MSc Major Projects. Teaching on the COMP40711 *Big Data & Its Infrastructure* and ISYS40061 *Service-Oriented Cloud Tech* modules.

### Nottingham Trent University | Clifton, Nottinghamshire Research Fellow and Lab Lead | 10/2021 - 05/2023

Conducting and publication of scientific research, exploring opportunities for external grant capture, and collaboration with colleagues. Provision of academic support for a Knowledge Transfer Partnership (KTP). In April 2022 I was appointed as the robotics lab lead by the Head of the Computer Science Department. Duties included management, outreach, and citizenship.

### Aston University | Birmingham Teaching Assistant | 07/2018 - 08/2021

Leading distance learning sessions for the degree apprenticeship programme. I was responsible for Human-Computer Interaction, Geographic Information Systems, Computer Graphics, and Computational Intelligence. My responsibilities involved the delivery of lecture material as well as lab supervision. In addition, I designed lab worksheets for Computational Intelligence (hypeheuristic neural network topology tasks) and created the MSc Artificial Intelligence coursework on implementing computer vision for self-driving vehicles, both of which are still in use today.

### The Marketing People | Burntwood, Staffordshire Web App Developer | 11/2016 - 11/2017

## Education

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### Aston University | Birmingham PhD | 08/2021

Awarded a scholarship to continue my studies at Aston University as a researcher in the fields of Artificial Intelligence and Human-Robot Interaction under the supervision of Prof. Aniko Ekárt and Dr. Diego R. Faria. In August 2021, I was awarded the PhD in Computer Science. My thesis can be read [here](#).

### Aston University | Birmingham BSc Computer Science | 07/2018

First Class Degree with Honours in Computer Science. My Final Year Project entitled "Learning from Interaction: An Intelligent Networked-based Human-bot and Bot-bot Chatbot System" was peer reviewed and published at the 2018 UK Workshop on Computational Intelligence.

### Erasmus Darwin Academy | Burntwood, Staffordshire A-Level | 07/2014

IT - Distinction\*, Game Development - Distinction\*, Media Studies - A\*

### Erasmus Darwin Academy | Burntwood, Staffordshire GCSE | 07/2012

ICT - Distinction\* (3x A\*), Science - A\*, Additional Science - A\*, Mathematics - A, English Language - A, History - A, English Literature - B

## Grants and Awards

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## Research Grants

I have successfully secured external funding for several collaborative research projects, totaling **£688,814** in grants:

*To Create an Innovative AI Approach for Enhancing Data Quality through Data Augmentation in the Finance Sector.* Funded by Innovate UK (**£235,710**) [2024-2027].

*Integrated Virtual Wards For Ageing Well.* Funded by Innovate UK (**£207,379**) [2024-2026].

*SmartBerry: Artificial Intelligence To Enhance Strawberry Farming In Developing Countries.* Funded by Innovate UK (**£245,725**) [2023-2025]

## Other Awards

Best Paper Award - AI Generated Art: Latent Diffusion-based Style and Detection, UKCI 2023.

Turing Network Development Award – Contributions made to the external grant application towards a University-wide data science network, [NTU-Turing](#). Funded by the Alan Turing Institute [2022]

PhD Studentship, fully funded - Awarded by Aston University [2018-2021]

Aston Excellence Scholarship - Awarded by Aston University [2014]

## Student Supervision

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**PhD** (Director of Studies): 2 students (under supervision)

**PhD** (Co-supervision): 1 student (under supervision)

**MSc** Major Project and Thesis: 19 students (14 graduated, 5 under supervision)

**BSc** Final Year Project: 10 students (1 graduated, 9 under supervision)

## Scholarly Duty

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**Grant Review** - duties have included provision of peer review reports for UKRI external research funding applications.

**International Journal Peer Review** - duties have included provision of peer review reports for, including but not limited to, the Journals of Ambient Intelligence and Humanized Computing, Expert Systems with Applications, Biocybernetics and Biomedical Engineering, IEEE Access, IEEE Transactions on Human-Machine Systems, and the IEEE Open Journal of Circuits and Systems, among others.

**Workshop Organiser** - The eighth Human Behaviour Monitoring, Interpretation and Understanding (NOTION) workshop at The PErsasive Technologies Related to Assistive Environments (PETRA) conference. Crete, Greece, 26th June - 28th June 2024. Organisers: Prof. Ahmad Lotfi, Dr Jordan J. Bird, Dr. Abdallah Naser.

**Technical Programme Committee** - UKCI 2023: The 22nd UK Workshop on Computational Intelligence. Aston University, Birmingham, UK, 6-8 September 2023.

**Programme Committee** - ALIFE 2023: The 2023 Conference on Artificial Life. Hokkaido, Japan, 24-28 July 2023.

**Workshop Organiser** - The seventh Human Behaviour Monitoring, Interpretation and Understanding (NOTION) workshop at The PErsasive Technologies Related to Assistive Environments (PETRA) conference. Corfu, Greece, 5th July - 7th July 2023. Organisers: Prof. Ahmad Lotfi, Dr Jordan J. Bird, Dr. Abdallah Naser.

**Programme Committee** - UA-DIGITAL 2023: UA Digital Theme Research Twinning. Virtual, Ukraine 27-31 March 2023.

**Guest Lecture** - "A Socially Interactive Multimodal Human-Robot Interaction Framework" delivered at the Kubota Lab, Tokyo Metropolitan University Hino Campus, Hachioji, Tokyo, September 16th, 2022.

**Workshop Organiser** - The sixth Human Behaviour Monitoring, Interpretation and Understanding (NOTION) workshop at The PErsasive Technologies Related to Assistive Environments (PETRA) conference. Corfu, Greece, 29th June - 2nd July 2022. Organisers: Prof. Ahmad Lotfi, Dr David Adama, Dr Jordan J. Bird.

## Citizenship and Outreach

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**AI/Robotics Demonstrations with Q&A** - Attendees to my events have included Lilian Greenwood (Labour MP for Nottingham South), Primary School pupils and faculty members, High School pupils and faculty members, neurodiverse students and faculty members from special education, the East Midlands Chamber of Commerce, and members of the elderly community.

**Robotic Tour Guide** - Development of specialised Human-Robot Interaction experiences for Nottingham Trent University Open Days.

**Outreach during PhD** - Additional activities during PhD research at Aston University included a meeting and AI discussion with Andy Street (Mayor of the West Midlands) as well as talks/demonstrations at events such as BrumAI, Brum Youth Trends, SME Live, West Midlands Forum for Growth, Aston HeadStart, and CompTIA.

## Research Interests

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My research interests include Artificial Intelligence, Human-Robot Interaction, Machine Learning, Deep Learning, Transfer Learning and Data Augmentation.

Many interesting technologies are developed in laboratories but stop short of helping in the real world, and my general research goals surround applying Artificial Intelligence to alleviate problems in the public sector.

## Active Projects

*The HistoriChat Project: Learning from Historical Figures through AI Engagement (2023)* - <https://jordanjamesbird.com/the-historichat-project/>

*SmartBerry: Artificial Intelligence To Enhance Strawberry Farming In Developing Countries (2023)* - <https://www.ntu.ac.uk/research/groups-and-centres/projects/smartberry-artificial-intelligence-to-enhance-strawberry-farming-in-developing-countries>

*To Create an Innovative AI Approach for Enhancing Data Quality through Data Augmentation in the Finance Sector (2024)*

*Integrated Virtual Wards For Ageing Well (2024)*

## Bid Submission and Development

Several projects submitted, or in development to submit to, funders including Google, Horizon Europe, UKRI AHRC, and InnovateUK. *Details available on request.*

## References

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Prof. Aniko Ekárt, Aston University - a.ekart@aston.ac.uk

Dr. Isibor Ihianle, Senior Lecturer in Computer Science at Nottingham Trent University - isibor.ihianle@ntu.ac.uk

Dr. Pedro Machado, Senior Lecturer in Computer Science at Nottingham Trent University - pedro.machado@ntu.ac.uk

Dr. Luis J. Manso, Lecturer in Computer Science at Aston University - l.manso@aston.ac.uk

Dr. Chloe M. Barnes, Lecturer in Computer Science at Aston University - c.barnes1@aston.ac.uk

## Journal Publications

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A full list of my publications can be found on [Google Scholar](#) and [ResearchGate](#).

ORCID: [0000-0002-9858-1231](https://orcid.org/0000-0002-9858-1231)

*As of 04/2024:*

**Bird, J. J., & Lotfi, A. (2024).** CIFAKE: Image Classification and Explainable Identification of AI-Generated synthetic images. *IEEE Access*.

- Fontes, L., Machado, P., Vinkemeier, D., Yahaya, S., **Bird, J. J.**, & Ihianle, I. K. (2024). Enhancing Stress Detection: A Comprehensive Approach through rPPG Analysis and Deep Learning Techniques. *Sensors*, 24(4), 1096.
- Falcon-Caro, A., Shirani, S., Ferreira, J. F., **Bird, J. J.**, & Sanei, S. (2024). Formulation of Common Spatial Patterns for Multi-task Hyperscanning BCI. *IEEE Transactions on Biomedical Engineering*.
- Bird, J. J.**, & Lotfi, A. (2023). Fall compensation detection from EEG using neuroevolution and genetic hyperparameter optimisation. *Genetic Programming and Evolvable Machines*, 24(1), 6.
- Bird, J. J.**, Naser, A., & Lotfi, A. (2023). Writer-independent Signature Verification; Evaluation of Robotic and Generative Adversarial Attacks. *Information Sciences*. doi:10.1016/j.ins.2023.03.029
- Bird, J. J.**, Barnes, C. M., Manso, L. J., Ekárt, A., & Faria, D. R. (2022). Fruit quality and defect image classification with conditional GAN data augmentation. *Scientia Horticulturae*, 293, 110684.
- Bird, J. J.**, Ekárt, A., & Faria, D. R. (2021). Chatbot Interaction with Artificial Intelligence: human data augmentation with T5 and language transformer ensemble for text classification. *Journal of Ambient Intelligence and Humanized Computing*, 1-16.
- Bird, J. J.**, Pritchard, M., Fratini, A., Ekárt, A., & Faria, D. R. (2021). Synthetic Biological Signals Machine-generated by GPT-2 improve the Classification of EEG and EMG through Data Augmentation. *IEEE Robotics and Automation Letters*, 6(2), 3498-3504.
- Bird, J. J.**, Faria, D. R., Manso, L. J., Ayrosa, P. P., & Ekart, A. (2021). A study on CNN image classification of EEG signals represented in 2D and 3D. *Journal of Neural Engineering*, 18(2), 026005.
- Bird, J. J.**, Ekárt, A., & Faria, D. R. (2020). British Sign Language Recognition via Late Fusion of Computer Vision and Leap Motion with Transfer Learning to American Sign Language. *Sensors*, 20(18), 5151.
- Faria, D. R., **Bird, J. J.**, Daquana, C., Kobylarz, J., & Ayrosa, P. P. (2020). Towards AI-based Interactive Game Intervention to Monitor Concentration Levels in Children with Attention Deficit. *International Journal of Information and Education Technology*, 10(9).
- Bird, J. J.**, Wanner, E., Ekárt, A., and Faria, D.R. Optimisation of phonetic aware speech recognition through multi-objective evolutionary algorithms. *Expert Systems with Applications*, p. 113402, 2020. <https://doi.org/10.1016/j.eswa.2020.113402>
- Bird, J.J.**, Kobylarz, J., Faria, D.R., Ekárt, A., Ribeiro, E.P. Cross-domain MLP and CNN Transfer Learning for Biological Signal Processing: EEG and EMG. *IEEE ACCESS*. 2020. <https://doi.org/10.1109/ACCESS.2020.2979074>
- Kobylarz, J., **Bird, J.J.**, Faria, D.R., Ribeiro, E.P, Ekárt, A.. Thumbs up, thumbs down: non-verbal human-robot interaction through real-time EMG classification via inductive and supervised transductive transfer learning. *Journal of Ambient Intelligence and Humanized Computing*. 2020. <https://doi.org/10.1007/s12652-020-01852-z>
- Bird, J. J.**, Ekárt, A., & Faria, D. R. (2019). On the Effects of Pseudo and Quantum Random Number Generators in Soft Computing. *Soft Computing*, 2019. Springer, 16 pages, 2019.
- Bird, J. J.**, Faria, D. R., Manso, L. J., Ekárt, A., & Buckingham, C. D. (2019). A Deep Evolutionary Approach to Bioinspired Classifier Optimisation for Brain-Machine Interaction. *Complexity*, 2019. vol. 2019, Article ID 4316548, 14 pages, 2019. <https://doi.org/10.1155/2019/4316548>.

## Manuscripts Under Review

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As of 04/2024:

- Shirani, S., Abdi-Sargezeh, B., Valentin, A., Alarcon, G., **Bird, J.**, & Sanei, S. (2024). Do Interictal Epileptiform Discharges and Brain Responses to Electrical Stimulation Come from the Same Location? An Advanced Source Localization Solution.
- Kar, P., **Bird, J. J.**, Xing, Y., Sumich, A., Knight, A., Lotfi, A., & van Barthold, B. C. (2024). A Deep Learning Method for Classification of Biophilic Artworks. *arXiv preprint arXiv:2403.05394*.
- Bird, J. J.**, & Lotfi, A. (2023). Real-time Detection of AI-Generated Speech for DeepFake Voice Conversion. *arXiv preprint arXiv:2308.12734*.
- Silva, R.S.R. and **Bird, J.J.**, (2023). FM-G-CAM: A Holistic Approach for Explainable AI in Computer Vision. *arXiv preprint arXiv:2312.05975*.

Monari, D., Larkin, J., Machado, P., **Bird, J. J.**, Ihianle, I. K., Yahaya, S. W., ... & Lotfi, A. (2023). UDEEP: Edge-based Computer Vision for In-Situ Underwater Crayfish and Plastic Detection. *arXiv preprint arXiv:2401.06157*.

Ihianle, D. I. K., Machado, P., Qutaishat, D., **Bird, J. J.**, Owa, K., & Al-Hadhrani, T. (2023) Shadow it Triager: A New Approach to Risk Management of Unsanctioned Applications. *Available at SSRN 4567886*.

## Conference Publications

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*As of 04/2024:*

**Bird, J. J.**, Barnes, C. M., & Lotfi, A. (2023). AI Generated Art: Latent Diffusion-based Style and Detection. 22nd Annual UK Workshop on Computational Intelligence (UKCI). *Best paper award*.

**Bird, J. J.**, & Lotfi, A. (2023). Generative Transformer Chatbots for Mental Health Support: A Study on Depression and Anxiety. Proceedings of the 16th International Conference on Pervasive Technologies Related to Assistive Environments, 475–479. Presented at Corfu, Greece. doi: <https://doi.org/10.1145/3594806.3596520>

Duamwan, L. M., & **Bird, J. J.** (2023). Explainable AI for Medical Image Processing: A Study on MRI in Alzheimer's Disease. Proceedings of the 16th International Conference on Pervasive Technologies Related to Assistive Environments, 480–484. Presented at Corfu, Greece. doi: <https://doi.org/10.1145/3594806.3596521>

Naser, A., Lotfi, A., Pourabdollah, A., & **Bird, J.J.** (2023). Toward a Holistic Elderly-Centred Behaviour Monitoring Solution: Achievements and Opportunities. Proceedings of the 16th International Conference on Pervasive Technologies Related to Assistive Environments, 491–496. Presented at Corfu, Greece. doi: <https://doi.org/10.1145/3594806.3596565>

**Bird, J. J.**, Saputra, A. A., Kubota, N., & Lotfi, A. (2022, December). Affective Computing in Computer Vision: A Study on Facial Expression Recognition. In 2022 13th International Congress on Advanced Applied Informatics Winter (IIAI-AAI-Winter) (pp. 84-88). IEEE.

Bittner, D., Ferreira, J. F., Andrada, M. E., **Bird, J. J.**, & Portugal, D. (2022, June). Generating synthetic multispectral images for semantic segmentation in forestry applications. In ICRA 2022 Workshop in Innovation in Forestry Robotics: Research and Industry Adoption.

**Bird, J. J.** (2022, June). EEG Wavelet Classification for Fall Detection with Genetic Programming. In Proceedings of the 15th International Conference on Pervasive Technologies Related to Assistive Environments (pp. 376-382).

Dolopikos, C., Pritchard, M., **Bird, J. J.**, & Faria, D. R. (2021). Electromyography Signal-based Gesture Recognition for Human-Machine Interaction in Real-Time through Model Calibration. Future of Information and Communications Conference (FICC). SAI.

Melotti, G., Premebida, C., **Bird, J.J.**, Faria, D.R. and Gonçalves, N., (2020). Probabilistic Object Classification using CNN ML-MAP layers. The 16th European Conference on Computer Vision (ECCV'20). Springer.

**Bird, J. J.**, Faria, D. R., Premebida, C., Ekárt, A., & Vogiatzis, G. (2020). Look and listen: A multi-modality late fusion approach to scene classification for autonomous machines. In 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) (pp. 10380-10385). IEEE.

**Bird, J. J.**, Faria, D. R., Premebida, C., Ekart, A., & Ayrosa, P. P. S. (2020). Overcoming Data Scarcity in Speaker Identification: Dataset Augmentation with Synthetic MFCCs via Character-level RNN. The 20th IEEE International Conference on Autonomous Robot Systems and Competitions (ICARSC'2020). IEEE.

**Bird, J. J.**, Faria, D. R., Ayrosa, P. P. S., & Ekart, A. (2020). From Simulation to Reality: CNN Transfer Learning for Scene Classification. 10th International Conference on Intelligent Systems. IEEE.

**Bird, J. J.**, Ekart, A., & Faria, D. R. (2019). Phoneme Aware Speech Synthesis via Fine Tune Transfer Learning with a Tacotron Spectrogram Prediction Network. 19th Annual UK Workshop on Computational Intelligence (UKCI).

Ashford, J., **Bird, J. J.**, Campelo, F., & Faria, D. R. (2019). Classification of EEG Signals Based on Image Representation of Statistical Features. 19th Annual UK Workshop on Computational Intelligence (UKCI).

**Bird, J. J.**, Wanner, E. F., Ekart, A., & Faria, D. R. (2019). Accent Classification in Human Speech Biometrics for Native and Non-native English Speakers. Pervasive Technologies Related to Assistive Environments (PETRA'19).

**Bird, J. J.**, Ekart, A., Buckingham, C, D & Faria, D. R. (2019). High Resolution Sentiment Analysis by Ensemble Classification. SAI Computing Conference 2019.

**Bird, J. J.**, Ekart, A., Buckingham, C, D & Faria, D. R. (2019). Evolutionary Optimisation of Fully Connected Artificial Neural Network Topology. SAI Computing Conference 2019.

**Bird, J. J.**, Ekart, A., Buckingham, C, D & Faria, D. R. (2019). Mental Emotional Sentiment Classification with an EEG-based Brain-machine Interface. The International Conference on Digital Image & Signal Processing (DISP'19).

**Bird, J. J.**, Manso, L. J., Ribiero, E., P., Ekart, A., & Faria, D. R. (2018). A Study on Mental State Classification using EEG-based Brain-Machine Interface. 9th International Conference on Intelligent Systems. IEEE.

**Bird, J. J.**, Ekart, A., & Faria, D. R. (2018). Learning from Interaction: An Intelligent Networked based Human-bot and Bot-bot Chatbot System. Advances in Intelligent Systems and Computing. Springer.

Hussain, M., **Bird, J. J.**, & Faria, D. R. (2018). A Study on CNN Transfer Learning for Image Classification. Advances in Intelligent Systems and Computing. Springer.