JONATHAN WINDLE

j.windle@uea.ac.uk
jonathanpwindle jonathanpwindle.github.io jonathanpwindle Jonathan Windle

I am an experienced researcher specialising in Multimodal Generative AI for speech-to-animation with a particular focus on 3D body gestures. I have spent five years in academia, contributing cutting-edge work to a variety of publications. I want to bring my expertise and continue pushing scientific understanding in this exciting research area as a Research Associate.

RELEVANT SKILLS

Machine Learning Tools
PyTorch | NumPy | SciKit-Learn | Pandas | Weights & Biases | HuggingFace

Programming Languages
Python | Java | C | C++ | LaTeX

Development Tools
Git | Trello | Jira | Docker

EDUCATION

PhD in Computer Science **(Expected - Viva Scheduled for December)**

University of East Anglia Oct 2020 – Present

Thesis title: Digital Humans: Automatic Character Animation

B.Sc. Hons: Computing Science with a year in industry **First Class**

University of East Anglia Sep 2015 – Jun 2019

Awards:
Final Year Assessment Prize
BCS East Anglia Prize

EXPERIENCE

Research Intern

Epic Games Jul 2024 – Present

I work with the speech-to-animation research team at Epic Games
- Implemented state-of-the-art 3D body-motion autoencoding methods
- Prototyped a speech-to-gesture model that utilises state-of-the-art audio encoding and motion decoding methods
- Investigated the integration of Large Language Model (LLM) features in speech-to-gesture methods
- Utilised Unreal Engine and Maya to visualise and edit 3D meshes
- Gained greater knowledge of the research area from conference attendance
- Collaborated with colleagues in multiple disciplines

Postgraduate Researcher

University of East Anglia Oct 2020 – Present

I worked in UEA's Computer Science department to complete my PhD during this time. My research title is Digital Humans: Automatic Character Animation
- Developed cutting-edge **Multimodal Generative AI** models for speech-to-animation, including **diffusion models**
- Harnessed **Large Language Model (LLM)** features to produce high-quality outputs
- Achieved competitive results in two successive Generation and Evaluation of Non-verbal Behaviour for Embodied Agents Challenges
- Engaged at length with generative modelling best practices through paper reviews and library documentation
- Exhibited a high standard of technical communication and an ability to adapt stylistically to the needs of different **publications**, conference talks, and guest lectures
- Independently developed AI engineering and experimental procedures by tracking experiment performance and model optimisation using tools such as Weights and Biases
- Performed extensive subjective and objective evaluation using advanced techniques such as Frèchet Distances and pair-wise statistical analysis
- Multimodal data analysis and exploration resulting in journal publication
- Assisted welcoming external researchers to the BMVA summer school

Research Associate

University of East Anglia Jun 2019 – September 2020

Worked within the UEA Computer Science department, assisting with research in user identification using keystroke dynamics
- Designed successful machine learning experiments for user identification using keystroke dynamics

- Fully understood and implemented appropriate ethical procedure regarding the implications of AI and human user study data
- Developed a RESTful full-stack online data-gathering platform and data-processing pipeline for use on multiple datasets
- Productively collaborated with other research groups with internal and external research groups

Software Developer Intern

Boeing Defence UK Jul 2017 – Sep 2018

Completed a year-long placement with Boeing Defence UK, gaining exposure to a variety of departments and work processes, including its industry-leading R&D department

- Delivered business-critical software to the Ministry of Defence
- Worked on prototype software for automated object detection using multimodal data
- Worked on a RESTful full-stack website development project with continual positive client feedback
- Praised for my ability to adapt quickly to new environments and projects as they were assigned
- Developed quick code implementation, prototyping and experimental skills
- Experienced requirements gathering and current landscape analysis
- Employee Involvement vice-captain. A leader in encouraging good team practices, active team involvement, improvements and cost-reduction initiatives

Associate Tutor

University of East Anglia Sep 2019 – Present

Assisted in teaching both undergraduate and postgraduate modules including AI, Architectures & Operating Systems, Ubiquitous Computing, Programming and Data Structures and Algorithms.

- Assisted students in Laboratory sessions, delivering informative presentations and providing constructive feedback, including marking coursework to tight deadlines
- Received positive feedback for concise and insightful explanation of advanced topics

PUBLICATIONS

Journal Articles

- J. Windle, I. Matthews, and S. Taylor, "Llanimation: Llama driven gesture animation," *Computer Graphics Forum*, vol. n/a, no. n/a, e15167, DOI: https://doi.org/10.1111/cgf.15167. eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/cgf.15167.
- O. Buckley, D. Hodges, J. Windle, and S. Earl, "Clicka: Collecting and leveraging identity cues with keystroke dynamics," *Computers & Security*, vol. 120, p. 102 780, 2022.
- J. Windle, S. Taylor, D. Greenwood, and I. Matthews, "Arm motion symmetry in conversation," *Speech Communication*, vol. 144, pp. 75–88, 2022, ISSN: 0167-6393. DOI: https://doi.org/10.1016/j.specom.2022.08.001.

Conference Proceedings

- J. Windle, I. Matthews, B. Milner, and S. Taylor, "The uea digital humans entry to the genea challenge 2023," in *Proceedings of the 25th International Conference on Multimodal Interaction*, ser. ICMI '23, Paris, France: Association for Computing Machinery, 2023, pp. 802–810, ISBN: 9798400700552. DOI: 10.1145/3577190.3616116.
- J. Windle, D. Greenwood, and S. Taylor, "Uea digital humans entry to the genea challenge 2022," in *Proceedings of the 2022 International Conference on Multimodal Interaction*, ser. ICMI '22, Bengaluru, India: Association for Computing Machinery, 2022, pp. 771–777, ISBN: 9781450393904. DOI: 10.1145/3536221.3558065.
- J. Windle, S. Taylor, D. Greenwood, and I. Matthews, "Pose augmentation: Mirror the right way," in *Proceedings of the 22nd ACM International Conference on Intelligent Virtual Agents*, ser. IVA '22, Faro, Portugal: Association for Computing Machinery, 2022, ISBN: 9781450392488. DOI: 10.1145/3514197.3549677.
- S. Taylor, J. Windle, D. Greenwood, and I. Matthews, "Speech-driven conversational agents using conditional flow-vaes," in *Proceedings of the 18th ACM SIGGRAPH European Conference on Visual Media Production*, ser. CVMP '21, London, United Kingdom: Association for Computing Machinery, 2021, ISBN: 9781450390941. DOI: 10.1145/3485441.3485647.