Michael Wray

mwray.github.io
michael.wray@bristol.ac.uk

RESEARCH FOCUS

I am a Researcher in Computer Vision, having just finished my PhD at the University of Bristol. My research focus is action recognition in video and how both vision and language can be tied together for improved and scalable approaches. I particularly study an open-vocabulary of verbs for action understanding, both increasing the number of possible labels as well as using multiple labels to describe the same action.

EDUCATION

PhD in Computer Vision (Sep. 2015 – Sep. 2019) University of Bristol,
Thesis Title: Verbs and Me - An Investigation into Verbs as Labels for Action Recognition in Video Understanding. Supervisor: Dr. Dima Damen.

MEng in Computer Science (2011 – 2015) University of Bristol,
Degree Classification: First Class Honours. Dissertation Title: Generating Object Proposals for Wearable Visual Sensors. Average: 74%

A Levels (2009 – 2011) John Cabot Academy, Bristol,
Maths – A*, Further Maths – A, Physics – A, Computing – A.

INTERNSHIPS

Research Internship: Naver Labs Europe, Grenoble France (Autumn 2017), Supervisors: Dr. Gabriela Csurka & Dr. Diane Larlus

Cisco Undergraduate Internship: Router Testing and Development, Reading UK. (Summer 2014), Supervised by the router testing team.

AWARDS AND HONOURS

Best Poster Award (Honourable Mention), British Machine Vision Association Summer School (BMVASS), Swansea 2016.

Best 3rd year group project, University of Bristol 2014.

Top 3rd year Computer Science Undergraduate, University of Bristol 2014 (Sponsored by Netcraft).

EMPLOYMENT HISTORY

Post-Doctoral Researcher in Computer Vision Dec. 2019 – May 2020
University of Bristol. Worked on an upcoming large-scale dataset.

Teaching Associate Sept. 2018 – Sept. 2019
Leading the restucture of labs and coursework for 2nd year Computer Science Unit COMS21202 Symbols, Patterns and Signals.

Teaching Assistant Sept. 2015 – Sept. 2019
TA for multiple undergraduate Computer Science Courses: Data Structures and Algorithms (Y2); Symbols, Patterns and Signals (Y2); Computer Graphics (Y3); Image Processing and Computer Vision (Y3); and Applied Deep Learning(Y4).

PEER-REVIEWED PUBLICATIONS

The EPIC-KITCHENS Dataset: Collection, Challenges and Baselines 2020
Dima Damen, Hazel Doughty, Giovanni Maria Farinella, Sanja Fidler, Antonino Furnari, Evangelos Kazakos, Davide Moltisanti, Jonathan Munro, Toby Perrett, Will Price, Michael Wray – IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).

Fine-Grained Action Retrieval through Multiple Parts-of-Speech Embeddings. 2019
Michael Wray, Diane Larlus, Gabriela Csurka, Dima Damen – International Conference on Computer Vision (ICCV)

Learning Visual Actions Using Multiple Verb-Only Labels. 2019
Michael Wray, Dima Damen – British Machine Vision Conference (BMVC)

Scaling Egocentric Vision: The EPIC-Kitchens Dataset. 2018
Dima Damen, Hazel Doughty, Giovanni Maria Farinella, Sanja Fidler, Antonino Furnari, Evangelos Kazakos, Davide Moltisanti, Jonathan Munro, Toby Perrett, Will Price, Michael Wray – European Conference on Computer Vision (ECCV)

Trespassing the Boundaries: Labelling Temporal Bounds for Object Interactions in Egocentric Video. 2017
Davide Moltisanti, Michael Wray, Walterio Mayol-Cuevas, Dima Damen – International Conference on Computer Vision (ICCV)

SEMBED: Semantic Embedding of Egocentric Action Videos. 2016
Michael Wray, Davide Molitsanti, Walterio Mayol-Cuevas, Dima Damen – European Conference on Computer Vision Workshops (ECCVW)

ARXIV PAPERS

Towards an Unequivocal Representation of Actions. 2018
Michael Wray, Davide Moltisanti, Walterio Mayol-Cuevas, Dima Damen – ArXiv.

TALKS AND POSTER PRESENTATIONS

ICCV 2019
Poster Presentation: Fine-Grained Action Retrieval through Multiple Parts-of-Speech Embeddings.

BMVA Symposium on Video Understanding 2019
Poster Presentation: Fine-Grained Action Retrieval through Multiple Parts-of-Speech Embeddings.

BMVA Symposium: Robotics Meets Semantics 2018
Oral Presentation: Towards an Unequivocal Representation of Actions[1].

CVPR Demo 2018
Demonstration: Scaling Egocentric Vision: The EPIC-Kitchens Dataset.

Brave New Ideas in Visual Understanding (BIVU) at CVPRW 2018
Poster Presentation: Towards an Unequivocal Representation of Actions

Egocentric Perception, Interactions and Computing (EPIC) at ECCVW 2016
Oral Presentation: SEMBED: Semantic Embedding of Egocentric Action Videos.

REVIEWING DUTIES

Intenational Journal of Computer Vision (IJCV) 2020

[1] Video Link: `https://www.youtube.com/watch?v=8rndQTQsEjE`

IEEE Transactions on Pattern Analysis and Machine Intelligence – Special Issue (TPAMI)	2020
British Machine Vision Conference (BMVC)	2020
Computer Vision and Pattern Recognition (CVPR)	2019
British Machine Vision Conference (BMVC)	2019
Egocentric Perception, Interaction and Computing (EPIC) ECCVW	2018
Egocentric Perception, Interaction and Computing (EPIC) ICCVW	2017

SKILLS AND EXPERIENCE

Dataset Collection I participated in the collection of three datasets:

- Dataset Under Review - Benchmark Creation.
- EPIC-Kitchens - Verb and Noun Semantic Processing and Grouping.
- Bristol Egocentric Object Interactions Dataset - Verb Labels.

Programming Skills Comfortable with a wide range of tools and languages such as Python, C/C++, C#, Java, MATLAB, Git, and Slurm. I also have some experience with HTML, PHP, Javascript, Haskell, Prolog and E.

Deep Learning Tools/Experience PyTorch, Tensorflow, MatConvNet.

NLP Tools/Experience WordNet, Spacy, Word2vec, GloVE.

OTHER ACTIVITIES

Student Representative

- Post-Graduate Representative for the Department of Computer Science (2016-2019).
- Graduate Studies Committee Post-Graduate Representative for the School of Computer Science, Electrical Engineering and Engineering Mathematics (2017-2019).
- Student Representative on the High Performance Computing Executive Board (2018-2019).

OTHER LINKS

Personal Webpage – `https://mwray.github.io`
GitHub – `https://github.com/mwray`
Google Scholar – `https://scholar.google.com/citations?user=gFQcKZMAAAAJ&hl=en&oi=ao`