

# DANIELA MASSICETI

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Senior Machine Learning Researcher  
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## RESEARCH INTERESTS

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- Few-shot/meta-learning, uncertainty quantification, model robustness to real-world/noisy visual data.
- Model explainability and transparency for human-in-the-loop systems.
- Assistive technologies for people with disabilities, primarily blind/low-vision.

## CURRENT POSITIONS

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**Senior Machine Learning Researcher. Microsoft Research, Cambridge** (Mar 2021–present)

- Project Tokyo team in Future of Work theme. Manager: Dr Cecily Morrison MBE

**Machine Learning Researcher. Microsoft Research, Cambridge** (Mar 2020–Feb 2021)

- Project Tokyo team in Future of Work theme. Manager: Dr Cecily Morrison MBE

**Postdoctoral Research Fellow. St Edmund's College, Cambridge** (Apr 2020–present)

- 2-year non-stipendiary research fellowship

## EDUCATION & SELECTED AWARDS

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**D.Phil Engineering Science (Machine Learning). University of Oxford, Pembroke College** 2015–2019

- Thesis: “*Computer Vision & Natural Language Processing for People with Vision Impairment*” (awarded, no corrections)
- *Examiners*: Prof. Andrew Zisserman, Prof. Kristen Grauman
- *Supervisors*: Prof. Philip H.S. Torr, Dr Stephen Hicks
- Bronze Engineering Award at [STEM4Britain](#) (awarded by UK Parliament House of Commons) 2018
- Winner of University of Oxford Tri-Innovate Competition (start-up pitch competition) 2017

**M.Sc Neuroscience (with distinction). University of Oxford, Pembroke College** 2014–2015

- With Prof. Rafal Bogacz – “*Modelling Parkinson's Disease tremor with networks of weakly-coupled oscillators*”
- With Dr Stephen Hicks – “*Sonic Vision: 3D visual-to-audio mappings for non-sighted navigation*”

**B.Sc Engineering - Electrical & Computer (cum laude). University of Cape Town (UCT)** 2010–2014

- With Prof. Fred Nicolls – “*Occluded body pose estimation and reconstruction of bed-bound patients for hospital monitoring*”
- Siemens Prize (best final year thesis) and finalist in SAIEE National Student Project Competition (2013)
- Engineering Council of South Africa (ECSA) medal - top final year B.Sc(Eng) graduate (2013)
- Cape Town City Gold, Silver & Bronze medal (top 4<sup>th</sup>, 3<sup>rd</sup> & 2<sup>nd</sup> year student in Engineering faculty) (2013, 2012, 2011)
- Class medal (top 4<sup>th</sup>, 3<sup>rd</sup> & 2<sup>nd</sup> year student in Electrical & Computer Engineering) (2013, 2012, 2011)
- UCT Engineering Faculty Dean's Merit List ( $\geq 75\%$  average) (2010–2013)
- Golden Key International Honours Society (top academic 15% at UCT) (2010–2013)
- Rochester House (UCT residence) top 2<sup>nd</sup> year student and top overall student (2011)

**National Senior Certificate (IEB South Africa). Holy Rosary School, Johannesburg** 1996–2009

- Within Independent Examinations Board Top 50 Matriculants (top 5% in  $\geq 6$  subjects across South Africa) (2009)
- Deputy Head Girl and Dux Scholar at Holy Rosary School (2009)
- Holy Rosary School Honours (all-round academic, sporting and cultural excellence) (2009)
- Public Speaking & Academic full colours. Swimming & Service to the Community half colours (2008, 2009)

## PREVIOUS POSITIONS

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**Machine Learning Intern, Microsoft Research, Cambridge**

*June–Dec 2019*

- Developed machine learning models which learn to recognise objects after only seeing a few examples (low-shot recognition)
- Contact: Dr Cecily Morrison MBE - [cecilym@microsoft.com](mailto:cecilym@microsoft.com)

#### Machine Learning Intern, [OxSight Ltd](#)

Nov 2018

- Developed a machine learning model for predicting which images regions are salient for OxSight’s smart-spectacles
- Contact: Dr Stephen Hicks - [stephen.hicks@oxsight.co.uk](mailto:stephen.hicks@oxsight.co.uk)

#### Machine Learning Consultant, [London Vision Clinic](#)

May–July 2018

- Consulted on machine learning methods for automatic keratoconus prediction from retinal scans
- Contact: Dr Dan Reinstein - [dzt@londonvisionclinic.com](mailto:dzt@londonvisionclinic.com)

#### Visiting Student, Computer Vision Lab Dresden (CVLD), Technische Universität Dresden

Apr 2015

- Compared methods for image-based camera relocalisation using random forests and neural networks
- The project resulted in a paper which was accepted and published in ICRA 2017
- Contact: Prof Carsten Rother - [carsten.rother@iwr.uni-heidelberg.de](mailto:carsten.rother@iwr.uni-heidelberg.de)

### SELECTED SCHOLARSHIPS & GRANTS

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|--|-----------|
| – Pembroke College SCR Senior Scholarship  | 2018–2019 |
| – Facebook AI Research <i>ParlAI</i> Grant   | 2017–2019 |
| – Winner of Tri-Innovate (University of Oxford innovation competition)                               | 2017      |
| – Skye Foundation Scholarship, and University of Oxford Engineering Science Departmental Scholarship | 2015–2019 |
| – Clarendon Fund Scholarship   | 2014–2015 |
| – University of Cape Town Engineering Faculty Scholarship  | 2011–2013 |
| – Klaus-Jurgen Bathe Scholarship   | 2012–2013 |
| – University of Cape Town Engineering Faculty Entrance Scholarship, and Harry Allschwang Grant       | 2010      |
| – <i>ItalDev</i> South African-Italian Bursary [declined]  | 2010      |

### RESEARCH

#### *Selected Publications. See [Google Scholar](#) for full list*

- **Massiceti, D.**, Zintgraf, L., Bronskill, J., Theodorou, L., Harris, M.T., Cutrell, E., Morrison, C., Hofmann, K. and Stumpf, S., 2021. *ORBIT: A Real-World Few-Shot Dataset for Teachable Object Recognition*. In 2021 IEEE International Conference on Computer Vision (ICCV).
- Theodorou, L., **Massiceti, D.**, Zintgraf, L., Stumpf, S. , Morrison, C., Cutrell, E., Harris, M. T. and Hofmann, K., 2021. *Disability-first Dataset Creation: Lessons from Constructing a Dataset for Teachable Object Recognition with Blind and Low Vision Data Collectors*. In 2021 ACM Conference on Computers and Accessibility (ASSETS).
- **Massiceti, D.**, Kulharia, V., Dokania, P.K., Siddharth, N. and Torr, P.H.S., 2020. *A Revised Generative Evaluation of Visual Dialogue*. arXiv preprint arXiv:2004.09272.
- **Massiceti, D.\***, Dokania, P.K.\*, Siddharth, N.\* and Torr, P.H.S., 2018. *Visual Dialogue without Vision or Dialogue*. In 2018 Conference on Neural Information Processing Systems (NeurIPS) [Critiquing & Correcting Trends in ML Workshop].
- **Massiceti, D.**, Siddharth, N., Dokania, P.K. and Torr, P.H.S., 2018. *FlipDial: A Generative Model for Two-Way Visual Dialogue*. In IEEE Conference on Computer Vision and Pattern Recognition (CVPR). [accepted as oral]
- **Massiceti, D.**, Hicks, S.L. and van Rheede, J.J., 2018. *Stereosonic Vision: exploring visual-to-auditory sensory substitution mappings in an immersive virtual reality navigation paradigm*. PLOS ONE 13(7): e0199389.
- Hou, Q\*, **Massiceti, D.\***, Dokania, P.K., Wei, Y., Cheng, M.M. and Torr, P.H.S., 2017. *Bottom-up top-down cues for weakly-supervised semantic segmentation*. In 2017 International Conference on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR).
- **Massiceti, D.**, Krull, A., Brachmann, E., Rother, C. and Torr, P.H.S., 2017. *Random forests versus Neural Networks - What’s best for camera localization?*. In 2017 IEEE International Conference on Robotics and Automation (ICRA).

### ***Selected Presentations***

- Guest lecture on dataset bias, *Department of Computer Science and Technology, University of Cambridge* Feb 2020
- A Generative Model for Visual Dialogue, *OxBridge Women in Computer Science Conference* Mar 2018
- Teaching Computers to Chat, *ATOM Science Society* Aug 2017
- Seeing with Sound: Sensory Substitution for navigation and obstacle avoidance, *Oxford Vision Group* Oct 2015

### ***Workshops & Short Courses***

- Deep Learning Indaba, Kenyatta University, Kenya Aug, 2019
- Deep Learning Indaba, Stellenbosch University, South Africa Sept, 2018
- Google Computer Vision Ph.D Student Summit, Zurich Oct, 2016
- Machine Learning Summer School (MLSS), Cadiz, Spain May, 2015
- High Performance Signal Processing workshop for Square Kilometre Array (SKA), South Africa Jan, 2013
- Technical skills course at the Cape Peninsula University of Technology (CPUT) Dec, 2010

## **LEADERSHIP**

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### **Committee member of *Deep Learning Indaba***

2017-present

- Organised Indaba 2018 & 2019, an annual machine learning summer school for African AI community
- Flagstone global event for promoting African inclusion in machine learning and artificial intelligence

### **Industry Officer of *University of Oxford Women in Computer Science***

2018–2019

- Engagement with society's industry partners (including Google, DeepMind, Facebook, Bloomberg, Microsoft, and others)
- Coordination of termly office visits, technical talks, and coding and interview preparation workshops

### **Committee member of *University of Oxford Women in Engineering***

2016–2019

- Coordinated 1<sup>st</sup> Women in Engineering Research Symposium, May 2018

### **President of Middle Common Room (MCR), Pembroke College**

2017

- Elected to represent a graduate body of 350 members
- Introduced per-student subsidies for welfare support, extra-curricular and academic activity
- Member of Pembroke College Governing Body Committee and Operations Group Committee

### **Treasurer and Vice President of Middle Common Room (MCR), Pembroke College**

2015–2017

- Managed an annual operating cash flow of £40,000-£50,000
- Acquired over £4000 in funding for MCR academic, sporting, cultural and social events
- Member of Pembroke College Finance & Planning Committee and Student Development Committee

## **EXTRA-CURRICULAR**

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### ***Entrepreneurship***

- Began a web-design company for business and personal website development 2013–present
- Won start-up competition at University of Oxford with idea for an assistive tool for visually-impaired people 2017

### ***Sporting***

- University of Oxford seconds swimming team 2016–2018

### ***Outreach***

- Oxford Females in Engineering, Science and Technology (OxFEST) Mentorship Scheme (1 student) 2018–2019
- Pembroke MCR/JCR Mentorship Scheme (4 students) 2016–2018
- Volunteered 100+ hours at local orphanages, HIV/Aids homes and hospitals 2009–2013
- Tutored high-school students from township (rural) schools in Cape Town in Mathematics, Biology and Physics 2013

## **REFERENCES**

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**Dr Cecily Morrison MBE**  
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Microsoft Research Cambridge

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+44 1865 283059  
Professor in Engineering Science,  
University of Oxford  
Chief Scientific Advisor, FiveAI  
Royal Academy of Engineering Fellow

**Dr Stephen Hicks**  
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Research Fellow in Neuroscience  
University of Oxford  
CEO, Head of Innovation, OxSight