Shyam A. Tailor

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Education

University of Cambridge
PhD in Computer Science **October 2019 — Summer 2022 (Expected)**

- Third year student in the Machine Learning Systems group; supervised by Dr Nicholas Lane.
- Interested in techniques for **efficient on-device machine learning applications operating on non-uniformly structured data**. Particular interest in graph neural networks (**GNNs**) including applications to problems such as computer vision and code analysis.
- **3 conference papers at ICLR, and 1 paper at HotMobile; workshop papers at MLSys, ICML, ICLR and ICCV**. Awarded **best paper** at ICCV 2021 workshop.

Skills: Machine Learning | Graph Neural Networks | Edge Compute | Computer Vision | Python | C++ | PyTorch

University of Cambridge
MEng Computer Science **October 2018 — June 2019**

- **Distinction (rank 2/16, 87%).** Specialised in cyber-physical systems and machine learning.
- Dissertation: *"Continuous Auscultation in the Wild"*. Supervised by Prof Cecilia Mascolo; investigated wearable devices that listen to the body in real-time for health applications. Awarded **best paper** at WellComp workshop at UbiComp 2020.

Skills: Machine Learning | Cyber-Physical Systems | Wearable Devices | Audio Analysis | Python | C++

University of Cambridge
BA Computer Science **October 2015 — June 2018**

- **1st class honours (rank 3/98, 84%)**. 1st class achieved every year of degree.
- Dissertation: *"Anonymous Proximity Beacons from Smartphones"*. Supervised by Dr Robert Harle.
- Investigated anonymous proximity detection using Bluetooth-enabled smartphones. **Similar approaches used for COVID-19 contact tracing.** Results **published at PerCom 2018**.

Skills: Mobile Systems | Android | Bluetooth | Java | SQL | Bash | Git | Unix Tools

Work Experience

Arm ML Research Lab
Research Intern **May 2021 — August 2021**

- Achieved **4.5× reductions in inference latency** for models operating on point cloud data, without accuracy degradation. First author paper awarded **best paper** at the Deep Learning for Geometric Computing ICCV Workshop. Currently preparing patents for submission.
- Worked with Partha Maji and Tiago Azevedo in the Cambridge, UK team.

Skills: PyTorch | TensorFlow Lite | Point Clouds | Computer Vision | Edge Compute | Graph Neural Networks

Facebook
Software Engineering Intern **June 2018 — September 2018**

- Interned on Workplace team in London. Designed and deployed to production REST APIs and bot features that are widely advertised as part of the core product offering.
- Worked primarily with Hack (Facebook's fork of PHP) on backend infrastructure.

Skills: Hack | PHP | REST | Backend | API Design

Ensoft
Software Engineering Intern **July 2017 — September 2017**

- Wrote an automated regression testing tool to verify that a system re-implementation matched the original system over billions of possible inputs.
- Written in Python and utilised an SMT solver to generate test cases.

Skills: Python | Automated Testing | SMT Solvers | Infrastructure | Linux | Docker

Selected Publications

[ICLR 22a] **Shyam A. Tailor**, Felix L. Opolka, Pietro Liò, and Nicholas D. Lane. "Do We Need Anisotropic GNNs?" In: *ICLR 2022*.

[ICLR 22b] Milad Alizadeh, **Shyam A. Tailor**, Luisa M Zintgraf, Joost van Amersfoort, Sebastian Farquhar, Nicholas Donald Lane, and Yarin Gal. "Prospect Pruning: Finding Trainable Weights at Initialization using Meta-Gradients". In: *ICLR 2022*.

[ICCVW 21] **Shyam A. Tailor**, René de Jong, Tiago Azevedo, Matthew Mattina, and Partha Maji. "Towards Efficient Point Cloud Graph Neural Networks Through Architectural Simplification". In: *Deep Learning for Geometric Computing Workshop, ICCV 2021*. ***Best Paper***.

[ICLR 21] **Shyam A. Tailor***, Javier Fernandez-Marques*, and Nicholas D. Lane. "Degree-Quant: Quantization Aware Training for Graph Neural Networks". In: *ICLR 2021*.

[UbiCompW 20] **Shyam A. Tailor**, Jagmohan Chauhan, and Cecilia Mascolo. "A first step towards on-device monitoring of body sounds in the wild". In: *WellComp Workshop, UbiComp 2020*. ***Best Paper***.

[HotMobile 20] Catherine Tong, **Shyam A. Tailor**, and Nicholas D. Lane. "Are Accelerometers for Activity Recognition a Dead-end?" In: *HotMobile 2020*.

[PerCom 18] Augustin Zidek, **Shyam Tailor**, and Robert Harle. "Bellrock: Anonymous proximity beacons from personal devices". In: *PerCom 2018*.

Talks

24th November 2021	Brave Research
11th October 2021	Deep Learning for Geometric Computing Workshop, ICCV 2021
5th July 2021	UK Mobile, Wearable and Ubiquitous Systems Research Symposium
22nd April 2021	Valence AI Graph Journal Club
9th April 2021	On-Device Intelligence Workshop, MLSys 2021

Leadership

Clare Hall, University of Cambridge

External Events Officer for Graduate Student Body **October 2020 — Present**

- Oversee the organisation of social events in collaboration with other colleges in the university.
- Typically organize 1 event per week for the 200 post-graduate students in the college.

Hack Cambridge

Sponsorship Team **July 2017 — October 2018**

- Cambridge's main annual student hackathon with approximately 400 attendees per year.
- Personally negotiated over £12,000 worth of sponsorship deals for the 2018 event.

Awards and Honours

- Best Paper — Deep Learning for Geometric Computing Workshop, ICCV 2021
- Best Paper — WellComp Workshop, UbiComp / ISWC 2020
- John Maheswaran Prize for Highly Commended Part III (MEng) Project — Department of Computer Science and Technology, University of Cambridge (June 2019)
- Foundation Scholarship — Downing College, University of Cambridge (June 2019)
- Huawei Studentship — University of Cambridge (May 2019, declined)
- EPSRC Excellence Award — University of Oxford (March 2019)
- EPSRC Doctoral Training Partnership Scholarship — University of Oxford (March 2019, withdrawn in favor of more prestigious EPSRC Excellence Award)
- Alcan Prize for most successful undergraduate in their penultimate year (physical and applied sciences) — Downing College, University of Cambridge (June 2018)
- Scholarship — Downing College, University of Cambridge (June 2016, 2017 and 2018)