

Anuj Vaishnav

Email: anujvaishnav20@gmail.com; Mobile: +91 8849981006;

LinkedIn: uk.linkedin.com/in/anujvaishnav; Webpage: <https://anujvaishnav.github.io/>

Experience

2017 – 2020 **PhD Researcher**, APT Group, University of Manchester, UK.

- Worked in a fast-paced environment with 4 other researchers where we planned, engineered, evaluated and published research almost every 3 months.
- Responsible as a lead for project management, open-source release, live demo, system design and implementation for FOS – FPGA Operating System.
- Supervised and mentored 2 interns while also giving talks and demo at various global conferences around the world.
- Main outcome was an FPGA Operating System which provides a 100x reduction in development time, 2.34x faster compilation, 20% faster execution and 95% lower waiting times for dynamic workloads compared to flagship commercial tools. (Currently in talks for licensing.)

2018 Sept-Nov **Consulting IoT Platform Engineer**, HTV GmbH / University of Manchester, Germany/UK.

- Delivered PetaLinux based IoT platform with remote access for hardware accelerators.
- Developed userspace drivers for cryptography accelerators (AES and Keccak/SHA3).
- Wrote tutorials and documentation for the platform handover.

2016 July-Sept **Hardware Intern – Design & Verification**, ARM, UK.

- Extended verification simulator to support legacy and upcoming AMBA bus protocols.
- Improved existing systems for better functional coverage checking.
- Created a new regression work-flow for lint tool and its continuous integration.
- Reported and resolved bugs in work-flow and verification test-benches.

2015 July-Aug **Summer Research Assistant**, APT Group, University of Manchester, UK.

- Designed a single instruction computer architecture based on data-flow graphs.
- Built a high-level functional and performance modelling simulator in JAVA.
- Summarised findings from experiments, design analysis and literature in technical reports.

Positions of responsibility

2017 – 2020	Graduate Teaching Assistant for 5 courses, total 350+ students, University of Manchester
2018 Jan - Jun	Part of Organizing Postgraduate Summer Research Showcase (for 1000+ students)
2015 – 2017	Secretary for Manchester Ultimate Programming Society, University of Manchester
2015 – 2016	Organised research talks for undergraduate students (500+), University of Manchester
2015 – 2016	Pass Leader , mentor and learning facilitator for 6 junior students, University of Manchester
2014 – 2016	Board Member of School of Computer Science Committee, University of Manchester
2014 – 2015	Part of Organizing HackDelhi Hackathon (100+ participants), Delhi, India
2014 – 2015	Student Representative for School of Computer Science, University of Manchester

Education

2017 – 2020 PhD Computer Science, University of Manchester, UK.

Research Topic: *Modular FPGA Systems with Support for Dynamic Workloads and Virtualisation*.
Supervised by: *Dr. Dirk Koch* and *Dr. James Garside*

Research focus: Built a modular development stack and dynamic runtime system for *elastic* and *scalable deployment* of hardware accelerators in the cloud and at the edge. Full list of 15 publications and citations available on Google Scholar: <https://scholar.google.co.uk/citations?user=GIMyblcAAAAJ>

2014 – 2017 BEng (Hons) Computer System Engineering, University of Manchester, UK.

First-class degree with 85% and specialisation in both *software* and *hardware* engineering.

- Final year project: Developed a library of high-performance hardware accelerators for security algorithms with strict resource budget and vector interface.
- Final year modules: Agile Software Engineering, Software Evolution, Compilers, Cryptography and Network Security, Chip Multiprocessors, and Documents on the Web.

Awards:

- **President's Doctoral Scholar Award, University of Manchester – 2017-21**
Given to the *top 3%* of research students across the university who demonstrate academic excellence and leadership potential.
- **Runner Up for Outstanding Doctoral Paper in Computer Science, University of Manchester – 2017-18**
Given to the *second-place winner* across the school for best research paper of the year, based on the external reviews, venue and acceptance rate. For "Live Migration for OpenCL FPGA Accelerators".
- **Edwards Prize, University of Manchester – 2016-17**
For the *highest distinction* in examinations, laboratories and projects relating to Computer Engineering courses *throughout the degree*.
- **IBM Team Challenge Award, University of Manchester – 2015-16**
For the consistent sterling performance of the *team* on all Software Engineering coursework.
- **Kate Kneebone Acorn Bursary, University of Manchester – 2015-16**
For a student with academic merit who has shown commitment, determination, enthusiasm, personal application and promise.
- **Golden Anniversary Prizes, University of Manchester – 2014-15**
For Excellence in first-year studies. Given to the *top 5* students of the year

Technical Skills

Object-oriented lang.: Java • Python • Ruby • Matlab

Website development: JavaScript • HTML + CSS • SQL • XSL • JSON

Embedded systems: C • ARM assembly • Petalinux • Userspace drivers

Hardware: Verilog • High-level simulation • Verification test-bench • Functional coverage

OS & other software: OpenCL • Bash • Tcsh • JUnit Testing • GNU/Linux • Windows • Gitlab