

DR DANE AUSTIN

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Pacifica, California

Optical physicist / system architect / programmer with 12 years of experience looking to apply a diverse skill set to projects of societal impact.

CAREER

Senior Optical Physicist / System Architect at Fathom Computing, July 2017 – present

Designed novel machine learning accelerator with $> 10^6$ optical channels for $>10x$ speed-ups on large-scale training problems.

Full system design and modeling, from the ray and wave optics of optical interconnects to high-level software architecture.

Design, construction, alignment and instrumentation of three record-breaking prototypes.

Optical system optimization and tolerancing for manufacture using Zemax and own custom ray and wave optics codes.

'Full spectrum' startup experience: codesigned with team spanning mechanical engineering, mixed-signal and digital electronics, machine learning; fund raising and pitching.

Research Fellow / Postdoc. at Imperial College London, April 2013 – June 2017

Supervised amplified ultrafast laser laboratory of 4-8 masters/PhD students: scheduling, safety, training.

Ultrafast laser and x-ray experiments, high-energy few-cycle infrared pulses, molecular high-order harmonic generation spectroscopy.

Bespoke hardware instrumentation: wrote ~ 10 control and diagnostic applications in MATLAB and Python.

Marie-Curie Intra-European Research Fellow at ICFO, 2011 – 2013

Laboratory experiments in high-order harmonic generation with infrared ultrashort pulses, developed new spatio-temporal ultrafast metrology tools, and designed ultrafast amplified laser systems.

Taught and assisted in supervision of 6 masters/PhD students.

EDUCATION

DPhil in Atomic and Laser Physics at University of Oxford, 2006 – 2011

[Clarendon Scholarship](#), University of Oxford, 2006 – 2009.

Nominated for European Physical Society Quantum Electronics and Optics PhD thesis prize.

MSc in Physics at University of Sydney, 2006

Photonic crystal fiber, supercontinuum generation, nonlinear optics.

Bachelor of Science / Bachelor of Electric Engineering at University of Sydney, 2000 - 2005

Best Honors project, School of Physics, University of Sydney, 2005.

[University Medal](#), Bachelor of Engineering (Electrical), University of Sydney, 2004.

Short listed for New South Wales Rhodes Scholarship, 2004.

Dean's Honors, University of California, Santa Barbara (study abroad), 2004.

PUBLICATIONS

38 refereed journal publications, 28 refereed conference presentations, 12 of which I was the presenting author and 3 of which were invited. 1127 citations, h-index of 16.

1 granted patent, 6 provisional patents.