Tigany Noor Abubaker Tigany Zarrouk

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Education

King's College London October 2017–Present
EPSRC CASE PhD Student in Computational Condensed Matter—3rd Year
Sponsored by Rolls-Royce. Atomistic investigation of oxygen solute-hardening in titanium alloys.

Imperial College London September 2013–June 2017
MSci. Hons. Physics (2:1)
Computational Physics, Quantum Theory of Matter, Light and Matter, Solid State, Group Theory, Foundations of Quantum Mechanics, Quantum Field Theory, Quantum Information, Advanced Classical Mechanics, Nuclear and Particle Physics, Mathematical Methods.

Bolton School Boys' Division 2006–2013
A-levels: Physics (A*), Maths (A*), Further Maths (A*), Chemistry (A)
GCSE's: 6 A*s, 4 As

Relevant Experience

Computational Physics PhD Student, October 2017–Present

- Full-time PhD quantum mechanical simulations of defects in alloys.
- Frequently use ARCHER and THOMAS supercomputers.
- Manage group's computer cluster.
- Developed on Questaal code and in-house atomistic code for parallelisation.
- Fit QM tight-binding model for Ti using non-convex optimisers
- Investigation into how oxygen modifies plasticity of aerospace alloys.

Linux Sysadmin, October 2019–Present
King's College London

- Manage Paxton group computer cluster of 12 nodes.
- Nodes configured with OpenSUSE and Slurm Workload Manager.
- Have experience configuring Sun Grid Engine and Torque.

Research Consultant/Visiting Researcher, November 2019–Present
SKF Houten, The Netherlands

- Full-time research consultant for 4 months in R&D centre of world's largest bearing manufacturer.
- Heavily used the SKF supercomputer, with Sun Grid Engine job scheduler.
- Completed computational investigation of dislocation-assisted carbon migration in bearing steels.
- QM tight-binding dislocation simulations coarse-grained into line-tension and kinetic Monte-Carlo models.
- Dislocation velocities determined as a function of temperature, stress and carbon concentration from ab-initio model.
- Models used to elucidate mechanism for microstructural decay in bearing steel from rolling cycle fatigue.

Rolls-Royce Internship, May 2020–August 2020
Rolls-Royce Aerospace

- Full-time internship for 3 months at Rolls-Royce Aerospace in Derby.
- 4 weeks with Modelling team.
- 3 weeks with the Materials Joining Group.
- 4 weeks with production.
- Work Shadowing of Ti senior Dave Rugg.

Undergraduate Research Opportunities Programme, July 2016–September 2016
Imperial College London

- 9-week, full-time research placement.
- Developed homoepitaxial growth model of GaAs with deposition and diffusion events using a Kinetic Monte Carlo algorithm.
- Extended model with the addition of another molecular species with differing properties.
- Analysed number of adatoms, island size and differences in crystal growth.

MSci Project, Imperial College London October 2016–Present

- Developed cellular automaton model of non-linear, electrical wave dynamics in the heart which spontaneously give rise to Atrial Fibrillation.
- Extended model to work on more realistic heart morphology to investigate new phenomena.

Computational Projects, Imperial College London October 2013–December 2015

- Modelled silver spheres in resin to find the Critical threshold for conductivity.

- Optimised the design of a pion accelerator and detector to measure branching ratios.
- Investigated the properties and dynamics of solitons under the Kortweg De-Vries Equation.
- Simulated double pendula and investigated dynamics under varous finite difference methods.

Head of Research and Design, October 2011–April 2012
EDT Engineering Education Scheme—Lancaster University & United Utilities
- Designed and created Silt Trap with a team of 5.
- Researched advanced concepts in Fluids and applied them.
- Used university facilities—flow tanks and meters to test and improve design.
- Member of multidisciplinary team to produce results within deadlines.
- Wrote report and presented solution to panel of Senior Engineers.

Additional Experience

Work Shadowing of Technician, Quay Pharmaceuticals Summer 2011
- Practical experience with laboratory equipment: High Performance Liquid Chromatography Machine.
- Measured specific properties of substances for analysis.
- Absorbed information quickly and efficiently to work within deadline.

Business Enterprise and Training Course Summer 2011
- Created an original business idea regarding current technologies.
- Business plan developed in a team.
- Pitch made to business owners.

Volunteering

Science Mentor, Ladybridge High School, Bolton 2011–2012
- Mentored pre-GCSE students struggling in the Sciences.

Mathematics Mentor, Bolton School Boys' Division 2011–2012
- Mentored students who have difficulties with Maths.

Young Leader, Bolton Lads and Girls Club Spring 2012
- Supervised children and helped organise activities.

Vfifty award
- Over 50 hours of volunteering in one Academic year

Achievements

- EPSRC bursary award for Undergraduate Research Opportunities Programme
- Gold Crest Award for completion of Engineering Education Scheme.
- Mathematics Prize for best in A-levels
- Duke of Edinburgh Silver: Sea Kayaking expedition with team of 4
- Trinity Guildhall Classical Guitar Grades: 1, 2, 5 and 7
- Vipassana 10-Day Meditation Course completion

Skills

Programming Languages: Bash, Julia, Fortran, Python, AVR Assembler.
Software: Emacs, LaTeX, Origin, LTSpice, Microsoft Office, Ableton.
Languages: Japanese (Level 1), Russian (GCSE)

Interests

- Weightlifting: Attend the gym 4 times a week
- Climbing: Attend 4 times a week. Organise trips.
- Music Production: Member of Imperial College Music Technology
- Philosophy: Member of Imperial College Socratic Society
- Meditation

References

Available on request