Ioannis **Nikiteas**

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Education

PhD in Computational Nuclear Physics

London, UK

Imperial College London

Dec. 2018 – Apr. 2022

- Researched and authored algorithms for error estimation used in multidimensional adaptive mesh refinement
- Wrote performant and scalable algorithms for massively parallel architectures (ARCHCER & ARCHER2 HPCs)
- Performed advanced data visualisation of multidimensional data
- Software developer at FETCH2 and Fluidity , using Fortran, C, C++ and Python
- Funded via Imperial College, Cambridge University & Open University (ICO) CDT and **Jacobs Engineering**

MSc in Advanced Nuclear Engineering

London, UK

Imperial College London

Sept.2017 – Sept.2018

- Obtained knowledge and developed skills on the fields of Material Science, Nuclear, Mechanical and Chemical Engineering
- Thesis on Dynamic Load balancing on angular adaptive mesh refinement for radiation transport.

BSc in Experimental Physics

Egham, UK

Royal Holloway University of London

Sept. 2014 – May. 2017

- Graduated with 1st Class Honours
- Obtained fundamental skills for analysing and solving problems in the fields of Physics and Mathematics
- Dissertation title: Investigating the transition from Molecular Dynamics to Smoothed Particle Hydrodynamics

International Baccalaureate Diploma

Athens, Greece

The Moraitis School

2012 – 2014

- Overall Score 36/45 with; Physics HL: 7/7, Math HL: 6/7, Chemistry SL: 5/7

Awards & Scholarships

Scholarships

2017 **Alexander S. Onassis Public Benefit Foundation**, Scholarship for academic excellence £13,000 *Athens, Greece*

Publications

Load balancing angular adaptivity on energy dependent reactor problems

Nikiteas, Ioannis, Dargaville, Steven, Smith, Paul N. Smedley-Stevenson, Richard P. Pain, Christopher C.

EPJ Web Conf. 247 (Feb. 2021) p. 03025. 2021

Reentrant melting and multiple occupancy crystals of bounded potentials: Simple theory and direct observation by molecular dynamics simulations

I. Nikiteas, D. M. Heyes

Phys. Rev. E 102 (4 Oct. 2020) p. 042102. American Physical Society, 2020

Impact of load balancing on parallel performance with Haar wavelets angular adaptivity

I. Nikiteas, S. Dargaville, C. C. Pain, P. N. Smith, R. P. Smedley-Stevenson

International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering, (M&C 2019), 2019

Bounded inverse power potentials: Isomorphism and isosbestic points

I. Nikiteas, D. M. Heyes

J. Chem. Phys 150.14 (Apr. 2019) p. 144504. American Institute of Physics Inc., 2019

Projects

fortls – Fortran Language Server

London, UK

Author – Maintainer

Jan. 2022 – PRESENT

- Author and maintainer of the **fortls** Language Server for Fortran
- Provides cross-platform, cross-editor, IDE features when writing Fortran, like hover, autocomplete, gotos, reference finding and many more
- For more information, visit the **fortls** documentation

Findent PyPi

London, UK

Author – Maintainer

Sep. 2021 – PRESENT

- Author and maintainer of the Python wrapper for the Fortran formatting tool findent

Modern Fortran Visual Studio Code – The Fortran Programming Language

London, UK

Co-Author – Maintainer

Oct. 2019 – PRESENT

- Project is the most popular Fortran extension in VS Code and has +500k Downloads & +200k installs
- Provide full IDE support for Fortran in VS Code, i.e. linting, syntax highlighting, debugging, formatting, LSP integration etc.
- For more information, visit the **Modern Fortran GitHub** repository

Load balancing for adaptive radiation transport simulations

London, UK

M.Sc. Thesis

Feb. 2018 – Sep. 2018

- Studied the use cases between spatial and angular discretisation methods e.g. FDM, FEM, FVM, DGFEM, S_n, P_n and wavelets
- Wrote a report on the application of global and goal based adaptive methods on transport problems
- Benchmarked, improved and optimised existing code in FETCH2 for load balancing of radiation transport problems

Investigating the transition from Molecular Dynamics to Smooth Particle Hydrodynamics

Egham, UK

B.Sc. Dissertation

Sept. 2016 – Apr. 2017

- Investigated the existence of a continuous transition between Molecular Dynamics (MD) and Smooth Particle Hydrodynamics (SPH) by creating computational models in C++ and Python
- Using principals of statistical mechanics e.g. RDF, VAF, MSD, quantitative observations were made for the transition limits between the two models
- A continuous transition between MD and SPH was discovered for the first time for a small range of parameters of the pair potential

Gallery with... ELPIDA (Hope)

Athens, Greece

Non-profit organisation

May. 2012

- Organised a 3-day art gallery focused on charity, with the aid of *Piraeus Bank Group Cultural Foundation* and the *Association of Friends and Children with Cancer "ELPIDA"*
- Displayed 152 art pieces from the 1st workshop of Athens's Art School raising a total of €75,000
- The profits were used for two purposes:
  - Support the noble cause of the *Association of Friends and Children with Cancer "ELPIDA"* and its president's Marianna V. Vardinoyannis
  - Aid in the combat of the high rates of youth unemployment in the Arts, by employing and promoting young artists

Experience

StudentShapers Placement - Research Computing and Data Science Exemplars (ReCoDE)

London, UK

Imperial College London

Jul. 2022

- Reviewed, edited and improved Computational & Data Science projects targeted training PhD candidates in their fields of study
- Worked on 5 projects in vastly different fields: Computer Vision & Convolutional Neural Networks, Nuclear Engineering using Diffusion theory, Physics modelling using Markov Chain Monte Carlo, RNA sequencing of biological data, Transmission modelling using Bayesian inference
- Worked with various programming languages: Python, Fortran, R, STAN

Graduate Teaching Assistant

London, UK

Imperial College London

Dec. 2018 – Dec. 2022

Taught various principles of programming, linear algebra, numerical methods and computational modelling to both final year Undergraduate students and Master's students:

- Module: 375 Advanced Programming C++
- Module: ACSE-5 Numerical methods with C++
- Module: ACSE-6 Parallel Programming using MPI

Intern Engineer, Maintenance of Alumina, Non-Invasive Testing Methods

Viotia, Greece

Aluminium of Greece

July. 2016 – Aug. 2016

- Was part of a team responsible for the optimisation and maintenance of equipment used in the production of aluminium oxide (alumina).
- Was familiarised with methods and techniques used to investigate for structural failures in industrial equipment.
- Performed non-destructive testing (e.g. Ultrasonic testing, liquid penetrant, eddy-current testing, remote visual inspection).

Skills and Inerests

Programming	Python, C/C++, Fortran, TypeScript, Bash and many more…
Other Software	Git, LaTeX, Markdown, Microsoft Office, Inkscape, FreeCAD, GMSH, Logger Pro 3
Languages	English, Greek, French
People	Communication, Leadership, Multidisciplinary Teamwork, Organisation
Laboratory	Risk assessment, Report writing, Experimental design
Interests	Coding, Interactive data visualisation, Chess