Ioannis **Nikiteas**

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Education

PhD in Computational Nuclear Physics

London, UK

Imperial College London

Dec. 2018 – Apr. 2022

- Investigating global and goal based error estimators for space-angle adaptive refinement of nuclear simulations
- Perform advanced data visualisation of multidimension PDE solutions
- Wrote performant and scalable algorithms for massively parallel architectures (ARCHCER & ARCHER2 HPCs)
- Software developer at FETCH2 and Fluidity
- Research 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
- Allows for cross-platform, cross code-editor, IDE-like features when writing Fortran, such as hover, autocomplete, gotos and 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.
- It was discovered that there exists a continuous transition between MD and SPH for a small range of parameters of the pair potential. Weak pair potentials force the particles into clusters with infinitely small separation distances. and that for very weak potentials, the fluid could be accurately approximated by an ideal gas.

Gallery with... ELPIDA (Hope)
Athens, Greece

Non-profit organisation
May. 2012

- Organised, with two more individuals, a 3-day art gallery focused on charity, with the aid of *Piraeus Bank Group Cultural Foundation* and *Association of Friends and Children with Cancer "ELPIDA"*.
- Intent of the gallery, was to promote hope and give back to people who were in need during times of hardship.
- 152 art pieces from the 1st workshop of Athens's Art School, were displayed, in Moraitis 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.
  - Contribute in the combat of youth unemployment by employing and promoting young artists.

Experience

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