Stefan Radman

PERSONAL DETAILS

Birth date, place	12 July 1992, Belgrade, Serbia
Nationality	Serbian, Italian
Address	Via al Boschetto 4, 6900 Lugano Ticino, Switzerland
Mobile	+41 78 818 75 28 (CH) +39 393 746 10 42 (I)
E-mail	sradman@protonmail.com
Website	www.stefanradman.com
LinkedIn	www.linkedin.com/in/stefan-radman-073154b4

EDUCATION

Ph.D. Nuclear Engineering 2017 – 2021

École Polytechnique Fédérale de Lausanne (EPFL), Vaud, Switzerland

Development, verification and validation of a C++ computer code for the simulation of thermal-hydraulics of advanced nuclear reactor concepts, primarily Sodium-cooled Fast Reactors; integration of said code within (and further development of) the open-source GeN-Foam multi-physics code.

M.Sc. Nuclear Engineering (with distinction) 2014 – 2016

Eidgenössische Technische Hochschule Zürich (ETHZ), Zürich, Switzerland

B.Sc. Engineering Physics 2011 – 2014

Politecnico di Milano, Lombardia, Italy

PROFESSIONAL EXPERIENCE

Modeling and simulation engineer January, 2022 – Present

Casale, Lugano, Switzerland

Variety of activities at the digital engineering department: 1) development of model-based software for the simulation of chemical plant unit operations; 2) development and maintenance of company web application back-ends; 3) management and analysis of large technical data-sets.

IAEA Training Course Series assistant September, 2021 – December, 2021

International Atomic Energy Agency (IAEA), Vienna, Austria

Drafting and finalization of an IAEA Training Course Series book related to a jointly-held ICTP-IAEA course on the theoretical foundations and application of Computational Fluid Dynamics in nuclear engineering.

Scientific collaborator April – August, 2021

École Polytechnique Fédérale de Lausanne (EPFL), Vaud, Switzerland

Extension of the code developed during the Ph.D. to the analysis of traditional nuclear reactor designs.

Intern July – September, 2015

Nationale Genossenschaft für die Lagerung radioaktiver Abfälle (Nagra), Aargau, Switzerland

Activation calculations for the PSI proton accelerator shielding at the Paul Scherrer Institut (Aargau, Switzerland) with the FLUKA Monte Carlo code.

RESEARCH EXPERIENCE

IAEA Coordinated Research Project participant 2018 – 2022

Participation to a Coordinated Research Project by the IAEA on computer code benchmarking for fast nuclear reactor concept analyses.

Teaching assistant 2017 – 2021

Teaching assistant duties at the EPFL consisted in: 1) exercise sessions for a M.Sc.-level neutron physics course; 2) experimental sessions for a M.Sc.-level radiation protection course; 3) experimental sessions for a B.Sc.-level general physics course, from Newtonian mechanics to black-body radiation.

SKILLS

Spoken languages	English (full working proficiency), Italian (native), Serbian (native), French (elementary working proficiency)
Soft skills	Excellent problem-solving, analytical thinking and creative thinking skills; strong project management skills in planning, organizing, and executing individual projects with minimal supervision; good time management skills; effective communication and collaboration skills in cross-functional, diverse teams
Programming languages	C++[3], C#[2], C[2], Python[3], GLSL[3], MATLAB[2], Fortran[1]; Z80 assembly, Intel 8080 assembly[1]; CMake[2]; HTML[1], CSS[1]; LaTeX[3], Markdown[3]
OSs, software, APIs	Windows[3] and Ubuntu[3] OSs; GeN-Foam[3] multi-physics code and OpenFOAM[3] (solvers and C++ API); Serpent[2], MCNPX[1] and FLUKA[1] Monte Carlo codes for radiation transport; Honeywell UniSim Design[2], HTRI Xchanger Suite[1] and RELAP5[1] simulation environments; OpenGL[2] (C++) and Nvidia CUDA[1] (Python) APIs for GPU programming; Python packages: NumPy[3], SciPy[2], Numba[3], TensorFlow[1], Pandas[2], Matplotlib[3], SocketIO[2], Flask[2]; Socket[2] and REST[2] based communication protocols for web applications; MongoDB[2]; Visual Studio[2] and Visual Studio Code[2] IDEs; Git[3] version control; GitLab CI/CD pipelines[2]; Microsoft/Libre Office[3] suites

The superscripts denote the level of self-assessed proficiency: 1) elementary (less than 6 months of experience); 2) intermediate (less than 3 years of experience); 3) advanced (more than 3 years of experience).

PERSONAL INTERESTS

Shader programming

Experimenting with OpenGL shader programming in conjunction with my knowledge of scientific computing to explore the realm of generative art. This interest led me to develop ShaderThing, a GUI-based tool for live shader programming.

Drawing

Self-taught, doodle-inspired, drawing on paper with fine-liner pens. Here is an example of one of my works.

Electric guitar

I have attended lessons at the Vincenzo Appiani music school in Monza, Italy, in the 2009 – 2014 period. Currently, I play at an amateur level.

PUBLICATIONS

[1] H. Qin, C. Fiorina, R. Zhang, **S. Radman**, D. Zhang, C. Wang, W. Tian, S. Qiu, and G. Su, "Extension of GeN-Foam to modeling of boiling water and validation against the OECD/NRC PSBT benchmark," *Nuclear Engineering and Design*, vol. 408, p. 112320, 2023.

[2] **S. Radman**, C. Fiorina, P. Song, and A. Pautz, "Development of a point-kinetics model in OpenFOAM, integration in GeN-Foam, and validation against FFTF experimental data," *Annals of Nuclear Energy*, vol. 168, p. 108891, 2022.

[3] **S. Radman**, C. Fiorina, and A. Pautz, "Development of a novel two-phase flow solver for nuclear reactor analysis: validation against sodium boiling experiments," *Nuclear Engineering and Design*, vol. 384, p. 111422, 2021.

[4] **S. Radman**, C. Fiorina, and A. Pautz, "Development of a novel two-phase flow solver for nuclear reactor analysis: algorithms, verification and implementation in OpenFOAM," *Nuclear Engineering and Design*, vol. 379, p. 111178, 2021.

[5] **S. Radman**, C. Fiorina, K. Mikityuk, and A. Pautz, "A Coarse-mesh Methodology for Modelling of Single-phase Thermal-hydraulics of ESFR Innovative Assembly Design," *Nuclear Engineering and Design*, vol. 355, p. 110291, 2019.

[6] C. Fiorina, **S. Radman**, A. Scolaro, and A. Pautz, "A Reduced Order Accelerator for Time-dependent Segregated Neutronic Solvers," *Annals Of Nuclear Energy*, vol. 121, pp. 177–185, 2018.

[7] **S. Radman**, C. Fiorina, and A. Pautz, "Preliminary Development of a Coarse-mesh Sodium Boiling Model for OpenFOAM Based Multi-physics Solvers," in *Proceedings of the 18th International Topical Meeting on Nuclear Reactor Thermal Hydraulics*, August 2019.

[8] C. Fiorina, **S. Radman**, and A. Pautz, "Preliminary Application of the Gen-Foam Multiphysics Tool to the Analysis of the FFTF Sodium Fast Reactor: Coupling Thermal-hydraulics And Core Deformations," in *Proceedings of the 18th International Topical Meeting on Nuclear Reactor Thermal Hydraulics*, August 2019.

[9] C. Fiorina, **S. Radman**, M. Z. Koc, and A. Pautz, "Detailed Modelling of Expansion Reactivity Feedback in Fast Reactors Using OpenFOAM," in *Proceedings of M&C*, August 2019.

[10] **S. Radman**, C. Fiorina, K. Mikityuk, and A. Pautz, "A Simplified Numerical Benchmark for Pool-Type Sodium Fast Reactors," in *Proceedings of the 26th International Conference on Nuclear Engineering*, American Society of Mechanical Engineers, July 2018.

[11] **S. Radman**, C. Fiorina, and A. Pautz, "Investigation of Partial Coolant Flow Blockage in a Sodium Fast Reactor Assembly with Coarse-mesh Methodologies," in *Proceedings of the 26th International Conference New Energy for New Europe*, September 2017.

[12] V. P. Lamirand, G. Perret, **S. Radman**, D. J. Siefman, M. Hursin, P. Frajtag, A. Gruel, P. Leconte, P. Blaise, and A. Pautz, "Design of Separated Element Reflector Experiments in CROCUS: PETALE," in *Proceedings of the 16th International Symposium on Reactor Dosimetry*, May 2017.