ARTHUR BAUVILLE
Geoscientist & software developer

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SUMMARY

Researcher with eleven years of experience in computational Earth Sciences, specialized in developing multiphysics simulation software and applying it to problems in geodynamics and structural geology. I am also a machine learning and data science practitioner (cf. my portfolio) with interest in deep learning and computer vision.

SKILLS

Programming languages: Python, C, MATLAB, Javascript, GLSL
Libraries: PyTorch, OpenCV, Pandas, scikit-learn, scipy, openMP
Techniques: Finite elements, finite difference, HPC, computer vision, neural networks, data visualization, supervised & unsupervised learning, Paraview (VTK)

EXPERIENCE

JAPAN AGENCY FOR MARINE-EARTH SCIENCES AND TECHNOLOGY – Yokohama, Japan
Researcher *Jul 2017 – Present*
External researcher *Jan 2016 – Jul 2017*

- Developed a simulation code that utilizes the UNIX supercomputer cluster (C, Python, openMP, OpenGL)
- Performed data visualization, data analysis of simulation unstructured data (>1 TB)
- Advised researchers on statistical methods, machine learning and simulation
- Raised 120,000€ in academic grant to support academic research and student training
- Wrote and presented scientific publications and grants in international journals and conferences
- Organized a Germany-Japan joint collaboration which resulted in a Master thesis and a scientific publication

UNIVERSITY OF MAINZ – Mainz, Germany
Post-doctoral researcher *Dec 2014 – Dec 2015*

- Developed a program to speed up and improve the design of 3D numerical simulations
- Taught numerical simulation methods (Finite-element), geodynamics and machine learning. Level BSc., MSc.
- Used unsupervised learning (principal component analysis) to determine the origin of mantle rocks in Europe.

UNIVERSITY OF LAUSANNE – Lausanne, Switzerland
Ph.D. student *Nov 2010 – Nov 2014*

- Developed analytical and numerical models to explain formation of tectonic nappes in W. Switzerland
- Taught numerical simulation methods (Finite-element, finite-difference), machine learning, and field techniques (geological mapping, stereography, structural geology). Level BSc., MSc.
- Wrote international peer-reviewed articles, and presented results at conferences.
- Co-organized the conference GeoMod 2012 (~100 participants): arranged venues, design/maintained website

EDUCATION

UNIVERSITY OF LAUSANNE – Lausanne, Switzerland *Nov 2014*
PhD in Earth Sciences
UNIVERSITY OF GRENOBLE – Grenoble, France *Jun 2010*
MSc. in Earth Sciences
UNIVERSITY OF TOURS – Tours, France *Jun 2008*
BSc. in Earth Sciences

ADDITIONAL

Languages: French, English, Japanese
Scientific publications: 16 peer-reviewed articles, ~200 citations
Machine learning competition: WAIDATATHON 2021, team leader, winner (1500$).