Wesley Banfield

Unconventional Thinker - Geologist - Software Engineer

Innovative young scientist looking to **unite cutting edge technology and pressing climate matters** to help provide a more sustainable future.

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Technologies

Jupyter	★★★★★
Orange	★★★★★
Plotly/Dash	★★★★★
Docker	★★★★★
Sklearn	★★★★★
Microsoft PowerApps / Flow	★★★★★

Languages

Python	★★★★★
C++	★★★★★
Javascript	★★★★★
SQL	★★★★★
LaTeX	★★★★★

Software Development

Backend	★★★★★
APIs / Database Calls	★★★★★
Full stack development	★★★★★
Frontend	★★★★★
Database design	★★★★★

Experience

10/19 - 6/20 **Project Manager Digital Innovation** — Envisol, France

In charge of designing and developing the front and backend of internal and market-ready web-based tools for data acquisition and interpretation for the Contamination and Remediation industry. Automation GIS data collection and treatment through web services.

01/17 - 05/19 **Research Engineer** — Seequent, Christchurch New Zealand

I pride myself on thinking laterally and outside of the box to provide novel innovative solutions, drawing on insights from both my geological and software engineering backgrounds.

The role permitted vast exposure to the company and clients. Regular client meetings and presentations were held as well as working, and leading, interdisciplinary initiatives.

Seequent are the developers of the Leapfrog Suite, a world standard for 3D implicit geological modelling software. Daily use and technical insights led me to become an expert user, continuously pushing the limits.

New Technologies Some problems call for thinking outside the box and implementing new technologies from the base up. Examples of these projects included web based dashboard creation, integration of Jupyter into workflows and deploying compute intensive tasks to the cloud.

New Solutions Other projects included the reuse of core IP in novel manners. For example the automated creation of geological models from sub sets of data to sample geological uncertainty. This work was presented at Seequent's Perth Lyceum.

Core Strategy Providing technical support for key business decisions including full verification of geostatistical implementations and creation of infrastructure to obtain and analyse usage metrics of Leapfrog software.
Reference : Tim Schurr, Solutions Architect

05/16 - 09/16 **Software Integration Engineering Internship** — Total, Pau France

Discretization plays an important part in coupled Oil & Gas basin modelling. Too fine, the computation time prevails, too coarse and the calculations do not converge. As a software integration engineer I implemented an interface with the RINGMesh library to dynamically re-mesh during simulations.
Reference : Tristan Cornu, Pore pressure and Rock Mechanics Specialist

02/16 - 05/16 **Research Intern** Ring Research Lab, Nancy France
Research and implementation of different automatic simultaneous well log correlation algorithms and creation of a SKUA-Gocad plug-in. The master's thesis was carried out in the lab that originally developed SKUA-Gocad before commercialisation by Paradigm. The work was presented and published in the 2016 Ring Meeting.
Reference : Dr. Guillaume Caumon, Head of Research team

06/15 - 09/15 **Software Engineering Internship** Seequent, Christchurch New Zealand
Design and development of a graphical user interface for geostatistical analysis in Leapfrog 3D Geological modelling suite, later integrated into Leapfrog EDGE. Implementation of different geostatistical algorithms.
Reference : Tim McLennan

09/14 - 05/15 **Lab Research Project** GeoRessources, Nancy France
Geochemistry can be used to date oil, however when in contact with water certain couples reset. The goal of the project was to develop an experimental protocol to analyse the behaviour of the Rhenium / Osmium couple. Automated graphing tools where developed to analyse the ICP-MS results.
Reference : Raymond Michels

Presentations and Publications

2020 **Prototyping for Geologists** Transform 2020
Short talk on building a infrastructure to rapidily build and deploy prototypes. Viewable on YouTube.

2019 **JupyterLab Quick Start Guide** Packt
Coauthor of the book written for Packt aimed at familairzing data scientists with the next-generation web-based data science notebook and natural evolution of Jupyter.

2019 **Integration of BIM and the subsurface** Indura Cluster
Oral Presentation on behave of Envisol demonstrating the integrations between Building Information Modelling and subsurface data

2018 **How certain are you of your surfaces** Seequent Lyceum Perth
Oral Presentation in front of over 200 mining experts on behalf of Seequent demonstarting the latest R&D work carried out at the company. Viewable on YouTube.

2016 **Current automatic well log correlation techniques** Ring Consortium
Oral Presentation in front off over 100 Oil and Gas experts demonstarting my Master's thesis on automated well log correlation techniques. The Master's thesis was also published in the Proceedings.

Education MEng, MSc

2013 - 2016 **Master in Geological Engineering with specialisation** French National School of Geological Engineering
Ecole Nationale Superieure de Geologie is a leading French engineering school specialising in geosciences and delivering an Engineering diploma combined with a Master from the University of Lorraine.

Curriculum: Numerical Geology
Natural Sciences: Hyrdogeology, Structural Geology, Geomorphology, Geophysics
Engineering Sciences: Applied Maths, Fluid Dynamics, Statistics, Partial Differential Equations
Software Sciences: Software Development, Interface Design, Computer Geometry, Visualisation and Parallelism, Mathematical concepts of geomodelling, Finite Elementss

Title of Thesis: "Current automatic well log correlation techniques, their advantages and drawbacks". *References*: Dr. Guillaume Caumon, Jonathan Edwards

2011 - 2013 **Classes Preparatoires aux Grandes Ecoles** Lycee Pierre de Fermat, Toulouse France
2 years of intensive general scientific courses before national exams for entry to the French Grandes Ecoles, carried out at Pierre de Fermat, one of the top preparatory schools finishing in the top 10% nationally.
Main subjects: Mathematics, Physics, Chemistry, Biology and Geology,