Robert Kerr

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Melbourne, Australia

I am a scientific researcher who has recently transitioned into web development. I enjoy programming, maths, technology, and interesting problems, but I'm particularly interested in how data and ideas are visualised and presented.

Computational neuroscience

My background is in engineering and mathematics, and in applying approaches from these fields to neuroscience research. I develop mathematical models of how neurons, and networks of neurons, behave in the brain. At IBM Research, I focus on neurons in the retina, in order to develop treatments for degenerative blindness.

Full-stack web development

I am a self-taught web developer who is now applying these skills at IBM Research to build web-enabled scientific research tools, which are visualised in a browser and powered by cloud computing and storage resources.

I have presented this work at international JavaScript conferences, including:

JSConfBP: Budapest (May 12, 2016)
https://www.youtube.com/watch?v=mz4N3U5f2tg

RejectJS: Berlin (Sept 24, 2015)
https://www.youtube.com/watch?v=fq2IFFK08Ik

As part of this work, I'm currently using: React, Redux/Flux, D3.js, Three.js, Node.js, PostgreSQL, CouchDB, Bash, Python, Docker, Openstack, C++ and Git.

I've previously used: Ruby on Rails and AngularJS.

I want to try out: Mobx, GraphQL, Relay and Ansible.

Community

I teach web development and D3.js, using course notes which I co-developed:

D3.js course: http://isakiko.github.io/D3-visualising-data/

I am becoming involved in organising Decompress, a community focused hack-day following CSSConfAU and JSConfAU in Nov/Dec:

Decompress: http://2016.decompress.com.au/

Other skills and interests

I have a lot of experience in: mathematical modelling, scientific analysis, data visualisation and teaching myself new languages, technologies, and frameworks.

I have some experience but want more in: machine learning, functional programming, visual design, UX design and commerical software development.

Dual Bachleor Degree
02/05 - 11/09

University of Queensland

Mechanical Engineering and Mathematics

GPA: 6.98 (1 is lowest, 7 is highest)

Student Engineer
03/07 - 05/09

Veitch Lister Consulting

Developed new capabilities for in-house, city-wide, transportation forecasting software

Research Assistant
06/09 - 06/10

Queensland Brain Institute

Analysed microscope images of neurons during development

PhD Candidate
07/10 - 01/14

University of Melbourne, Department of Electrical & Electronic Engineering

Computational Neuroscience

Title: "Mathematical Modelling of Brain Networks: From Synaptic Plasticity to Behaviour"

Supervisors: Prof. Anthony N. Burkitt, Prof. David B. Grayden, Prof. Doreen A. Thomas

Postdoctoral Researcher
02/14 - 01/16

IBM Research Australia

Collaborating with university researchers on projects around the bionic eye, retinal degeneration, and epilepsy

Research Staff Member
02/16 - now

IBM Research Australia

Leading the neural modelling research and demonstrating how web technologies can transform scientific research

References available on request