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MICHAEL MARTYN

Bioinformatics Engineer

www.mmartyn.com

(510) 424-2113 | 115 Anzavista Ave, SF, 94115, CA

linkedin.com/mrmartyn | michael.martyn.92@gmail.com

PROFILE

Bioinformatician with 4 years of wet lab experience, and a familiarity with machine learning and web app development. Areas of specialisation include genome engineering, DNA build, and genome analysis (metagenomics). I have predominantly worked at the intersection of Biology and Software within highly interdisciplinary teams at both Newcastle University and Zymergen. I am interested in developing software that enables new technology or solves a scientists needs, be that algorithm development, building pipelines, or creating interactive visualisations to gain deeper insights.

COMP SKILLS

// Programming languages :
- Python - proficient
- SQL - intermediate
- Bash - intermediate

// Machine learning :
- Scikit-Learn - intermediate
- Keras- familiar with

// Tooling :
- Docker - intermediate
- Git - intermediate
- AWS - intermediate

// Web development :
- Django - intermediate
- CSS - intermediate
- HTML - intermediate
- JavaScript - familiar with
- JQuery - familiar with

// Visualisation :
- Seaborn - proficient
- Plotly - familiar with
- Bokeh - familiar with

// Design :
- Illustrator - intermediate

BIOINFO SKILLS

// Experienced *omic* areas:
- Genomics
- Metagenomics
- Proteomics

// NGS (short + long reads):
- Read QC
- Genome assembly & annotation
- Variant calling
- Genome edit QC

BIO SKILLS

CRISPR
Genome engineering
Pooled DNA build
Liquid handling robots (96/384w)

PRESENTATIONS

High-throughput Genome Engineering @ Synthetic Biology, Engineering, Evolution, & Design (SEED), *New York 2019*

AWARDS

Postgraduate scholarship £10,000 award (*Newcastle University)*

Club colours (*Newcastle University Athletics Union)*

INTERESTS

Running :
7th place finisher at the 2018 San Francisco half marathon
1st place finisher at the 2018 Angel Island 5mile
3rd place finisher at the 2018 Presidio 10k

PROFESSIONAL EXPERIENCE

Associate Bioinformatics Engineer
Zymergen | Emeryville, CA | 2020 - present

Worked cross-functionally between the Technology and Science departments to identify areas where I could build and deploy tools that would either enable new technologies or greatly benefit existing manual workflows. Example areas include DNA build QC, genome analysis, and NGS analysis. In this role, I utilised my domain knowledge to translate scientists needs and requirements into design docs so that myself and peers could readily produce tangible solutions.

Research Associate I, II, III
Zymergen | Emeryville, CA | 2017 - 2020

Involved in R&D wet lab and computational projects, ranging from building protein expression vectors, to developing automated analysis of DNA build success rates and failure mechanisms. This role culminated in me spearheading development of a bioinformatic pipeline to mine one of the most diverse metagenomic libraries in the world for novel high-value proteins.

Research Assistant
Newcastle University | Newcastle, UK | 2016

I performed both computational and lab development of a CRISPR toolkit to genetically engineer bacterial wastewater communities. I designed / implemented the guide RNA algorithm, built plasmids, transformed, picked colonies, and analysed NGS data from both short (Illumina) and long (MinION) data. Results were presented at an internal poster session to fellow peers.

Advisor, iGEM
Newcastle University | Newcastle, UK | 2016

Selected as the first Masters student at Newcastle University to be appointed an advisor to our undergrad team for the International Genetically Engineered Machines (iGEM) competition. I mentored the undergraduate team on various computational and wet lab skills.

EDUCATION

Machine Learning, Cert.
Data Institute | University of San Francisco | 2018

7-week in person course taught by Nathaniel Tucker (former *CTO, Nebula Genomics)* covering topics such as data cleaning, feature engineering, and model generation.

Synthetic Biology, MSc
Computing Science | Newcastle University | 2015-16

Thesis: *Cris.py - Experimentally validated Python tool for designing CRISPR guide RNA to target a single species within a microbiome.*

Molecular Biology, BSc
Biology | Newcastle University | 2012-15

Main thesis: "*Security in the era of Synthetic Biology*"
Sub thesis: "*Artificially Expanded Genetic Information Systems (AEGIS)*"

RELEVANT PROJECTS

Personal website

Upon completion of the Full-stack Python course, I developed a personal website using the Django framework with HTML, CSS & Javascript as a place to activity maintain my front-end skills and to host personal projects, analysis, and thoughts.

Health metric analysis

I use machine learning and visualisations to gain deeper insights into my personal health data (activity, sleep, heart rate, and nutrition) collected from my Garmin smart watch.

PROFESSIONAL DEVELOPMENT

Python Full Stack Bootcamp
Udemy | 2020

Online bootcamp (~100 hours) covering the fundamentals of web development and introducing the Django framework and the following languages: HTML, CSS, JavaScript, JQuery. The course consisted of lectures, exercises and, building 2 cornerstone projects (a ToDo app and a social media clone).

Project Management & Critical Thinking
Dr Don Gilman | 2019

Week long course taught by renowned international speaker and former rocket scientist - focusing on critical thinking, strategic planning, and group based problem solving.