

Thomas Binu Thomas

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EDUCATION

University of Sheffield

Sheffield, UK

First Class Honors MEng Bioengineering w. Year in Industry

September 2018 – July 2023

Scholarship Holder for the Sheffield Engineering Excellence Award

MEng Thesis: Practical Estimation of Breathing Rate from Physiological Signals

September 2022 – May 2023

- Applied feature-detection algorithms on ECG and SCG signals in the [CEBSDB](#) database to estimate breathing rate
- Applied signal processing techniques and spectral fusion using MATLAB to improve estimation quality

PROFESSIONAL EXPERIENCE

Diamond Light Source: Software Engineer

September 2023 – Present

Workflows Platform Developer

- Converted scientist needs to Argo WorkflowTemplates which are maintained in virtual cluster using Kubernetes
- Designed wireframes and created UI connected to GraphQL endpoints using Typescript, React and Relay
- Created and deployed Helm templates of platform for local deployment of ArgoCD in vcluster
- Written adequate documentation for scientists to use platform to run and use workflows

Athena Logpanel

- Developed asynchronous Typescript-React web-application for Synchrotron Logging System as a microservice-based replacement of current monolithic Java application through Agile and SCRUM methods
- Implemented robust type-hinted schema for API response data validation to improve code robustness
- Developed custom log filtering system to handle 3 data sources containing different log level rules

Robot Camera System

- Applied image processing techniques using Python OpenCV which optimally identified sample states from a camera feed, achieving maximum accuracy with minimal compute time to prevent sample damage
- Created API endpoints using FastAPI for image and processed feeds
- Deployed image to Kubernetes integrated successfully into current beamline workflow

PROJECTS

Microsoft AI Hackathon: [Chef Green](#)

June 2024

- Created custom chatbot using Django to host HTML, CSS and JavaScript front-end to suggest sustainable food recipes using leftovers in the fridge from text, voice or image inputs
- Applied prompt engineering to modify AI response based on user's needs: recipe complexity, time available and region of recipe
- Developed custom docker image for program to be implemented as a service in Kubernetes

Sheffield Bionics Arm Project:

September 2018 - September 2022

- Co-created machine-learning algorithm using TensorFlow for real-time gesture mapping from EMG signal, with a data collection UI developed using PyQt
- Created team structure, liaised between hardware, electronics and software teams, and delegated priority tasks as Arm Project Leader for 2020 Cybathlon Competition
- Organised running fundraiser for competition due to budget cuts during COVID-19
- 3D modelled, printed and assembled custom bionic hand for partnered amputee

MonoRepo Project

May 2025 - Present

- Creating barebones monorepo that takes a database-connected URL shortener in Rust
- Created Frontend for service using React and Typescript
- Dockerised frontend, backend and database using Docker-Compose

OTHER SKILLS

Languages: English (Fluent), Malayalam (Conversational), French (Intermediate)

Other Skills: MS Office, Problem Solving, Leadership, Time Management, Presenting, Arduino, Fusion 360

Interests: Photo Editing, Cooking, Squash, Cricket