Thomas Binu Thomas

Reading, UK | tbthomas1999@gmail.com | GitHub | LinkedIn

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*

Workffows Platform Developer

- Converted scientist needs to Argo WorkflowTemplates which are maintained in virtual cluster using Kubernetes
- Implemented Keycloak-based auth system to run GraphQL-authenticated Argo Workflows
- Actualized wireframes for UI components for Platform using Typescript, React and Relay from structured workshops with stakeholders
- Maintain and develop platform for production and staging environments using vCluster
- Implemented CLI using Clap in Rust for Workflows interface to create WorkflowTemplate boilerplate and steps after identifying stakeholder bottleneck

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 *November 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