SAMUEL BUDD

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EDUCATION

2018 – present, **PhD student Imperial College London**

- 2nd year PhD in Medical Image Computing,
- human-in-the-Loop Deep Learning for Medical Image Analysis as a part of the *BioMedIA* research group. We focus on using novel interactive deep learning methods for medical image analysis, biometrics estimation and image annotation,
- graduate teaching assistant,
- guest Lecturer for Medical Image Computing course for CDT in Smart Medical Imaging,
- consultant for Horatio Production.

2017 – 2018 **King's College London** *Masters of Research in Medical Imaging Sciences (Distinction)*

- Main project on Active Learning and Deep Learning enabled web annotation tools,
- attended the 2019 Medical Imaging Summer School and presented work at the BMEIS Symposium 2019.

2013 – 2017, **Imperial College London** *First Class Honors MEng in Computing*

- *Distinguished Individual Project* – *corticalexplorer.com* (VR version displayed annually at Imperial Festival)

WORK EXPERIENCE

Jun – Aug 2020 ***Frontier Development Lab*** *Researcher*
I am a researcher at Frontier Development Lab USA. Frontier Development Lab is a co-operative agreement between NASA and the SETI Institute. As part of the Astronaut Health Team we developed CRISP: The Causal Relation and Inference Search Platform, an ensemble of causal machine learning methods to discover causal relationships in heterogenous, high dimension, low sample size biological data such as cancer genomics and microbiome contents.

Apr – Sep 2016 ***Zuhlke Engineering Ltd*** *Industrial Placement*
Internal Java project to provide automated data synchronisation between Zuhlke's ERP and CRM systems. Client project writing Swift iOS app update for smart home solutions company. Several training initiatives and workshops. Two work experience students placed under my supervision.

July – Sep 2015 ***Zuhlke Engineering Ltd*** *Software Engineering Internship*
Worked in an Agile development team for the User-Centric Computing business unit. Internet of Things web/ mobile application in Javascript/ES6 and Unity3D to create an interactive 3D UI of the office tracking employee desk locations, meeting room occupancy and air quality, extending to live tracking of employee location within the office.

SCIENTIFIC PUBLICATIONS

2020 - 'Surface Agnostic Metrics for Cortical Volume Segmentation and Regression', Best Paper Honourable Mention, Machine Learning in Clinical Neuroimaging in Conjunction with MICCAI'20, Full Text.
A novel deep learning method for extraction of cortical segmentations and metrics from whole brain MRI images.

2019 - 'Confident Head Circumference Measurement from Ultrasound with Real-Time Feedback for Sonographers', International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI'19, Full Text.
A novel method to provide visual feedback to sonographers in real-time for automated biometric measurements in fetal screening.

2019 - 'A Survey on Active Learning and Human-in-the-Loop Deep Learning for Medical Image Analysis', arXiv:abs/1908.02582 Full Text.
Survey paper covering state-of-the-art techniques in Active Learning, automated prediction interpretation and refinement, Human-in-the-loop computing, practical considerations and related areas of research.

2017 - 'The Cortical Explorer: A Web-based User-interface for the Exploration of the Human Cerebral Cortex', Eurographics Workshop on Visual Computing for Biology and Medicine, EG VCBM Full Text

SKILLS & INTERESTS

Programming: Python (Currently used in my research for 3+ yrs), Java (Zuhlke CRM sync, WACC compiler), Javascript (Cortical Explorer, Zuhlke UI, group management and data visualisation tool), Matlab (Cortical Explorer data processing), Swift (iOS app), SQL (Zuhlke APIs), C++ (Imperial Automatic Drone flight challenge winners), and many others used in various undergrad coursework and projects e.g Haskell, Prolog, C, Pig, neo4j.
IT: LaTeX, HTML+CSS, Adobe Photoshop and Illustrator, Pro-Desktop CAD, Blender
Music: Lead singer and songwriter in a band (Jungle Doctors). Released two EP's and a number of singles. Over a million total plays on Soundcloud, half a million Spotify plays.
Sport: Football, Tennis, Cycling and Climbing.