

SUMMARY

Incoming computer vision PhD candidate starting September 2023 and currently working as a computational scientist with previous experience in academic and industrial research environments at the Medical Physics Department at University College London, the R&D group at Otonexus Medical Technologies, the Bioengineering Department at the University of Washington, and the Mechanical Engineering Research Group at Intellectual Ventures.

EDUCATION

Degree	Institute	Field of Study	Classification/Grade	Year
MPhil/PhD	AI Centre at University College London	Foundational Artificial Intelligence Neural Rendering Frameworks	N/A	2023-2027
MSc	University College London	Biomedical Engineering and Medical Imaging	Distinction/A	2021-2022
BSc	University of Washington	Biomedical Engineering and Mathematics	Honors/B+	2016-2020

EXPERIENCE

- **University College London Hospitals NHS Foundation Trust**

*Band 7 Clinical Scientist (Computational Scientist - Pre-Registered)*

2022 - Present

London

– Primary purpose to support clinical computer systems

– Responsibilities include: medical device IT systems design, cybersecurity of connected medical devices, programming and computer support for clinical research, SQL database management, and integration of AI systems in clinical settings
- **Otonexus Medical Technologies**

*Medical Device Design Engineer/Acoustic Engineer*

2020 - 2021

Seattle

– Engineer at a start-up company in the research group using MATLAB, Python, acoustic and electrical technology

– Helped streamline transducer calibration process from 3 hours to 2 minutes per device
- **University of Washington**

*Research Assistant & Teaching Assistant*

2018 - 2020

Seattle

– Paid research assistant in the Bioengineering Department focused on image optimization, CAD, and MATLAB simulations

– Teaching assistant for BIOEN 327 2019: Fluids & Materials Laboratory and BIOEN 420 2020: Medical Imaging
- **University of Washington Medical Center**

*Full Stack Development Consultant*

2019

Seattle

– Created a web application using Python to track and rate disease progression for Cerebral Palsy patients
- **Intellectual Ventures**

*Mechanical Engineer Intern*

2016

Seattle

– lead research on cheap alternative cold-chain vaccine transportation devices with a specific focus on CO2 technologies intended for usage in developing nations

PROJECTS

- **Ultrasound-based Skull Registration for Transcranial Ultrasound Stimulation**

*Master’s Thesis*

2021 - 2022

Github

– Developed algorithms to generate an ultrasound-derived point cloud of object outer surface from measured data

– Developed acquisition scripts and gathered ultrasound measurements from skull models and subjects using a transcranial ultrasound array

– Determined the transformation required to co-align the ultrasound-derived point cloud with a mesh-derived point cloud using tailored ICP registration techniques
- **In-vitro Bubble-Enhanced Heating for Focused Ultrasound Treatments in the Brain**

*Bachelor’s Thesis*

2018 - 2020

Publication

– Developed and evaluated a tissue-mimicking phantom with similar acoustic properties to human tissue

– Designed an appropriate experimental setup to perform in-vitro HIFU heating experiments

TECHNICAL SKILLS

- **Programming Languages:** Python, MATLAB, PowerShell, SQL, HTML & CSS
- **Tools and Frameworks:** Jupyter, PyTorch, Scikit-learn, VS Code, Microsoft SQL Server, SQLite
- **Operating Systems:** Windows, macOS, Ubuntu

PUBLICATIONS & CONTRIBUTED TALKS

- **Peer-reviewed Journal Article 2021:** Clark, Alicia, **Bonilla, Sierra**, Suo, Dingjie, Shapira, Yeruham, and Averkiou, Michalakis. 2021. “Microbubble-Enhanced Heating: Exploring the Effect of Microbubble Concentration and Pressure Amplitude on High-Intensity Focused Ultrasound Treatments.” *doi:10.1016/j.ultrasmedbio.2021.03.035. Ultrasound in Medicine & Biology. England: Elsevier Inc.*
- **Ultrasound Symposium Contributed Talk 2020:** A. Clark, **S. Bonilla**, D. Suo, M. Averkiou (2020) Enhanced Heating with Microbubbles in High Intensity Focused Ultrasound Applications, *The 25th European Symposium on Ultrasound Contrast Imaging, Rotterdam, The Netherlands.*
- **Ultrasound Symposium Contributed Talk 2019:** D. Suo, A. Clark, **S. Bonilla**, S. Keller, M. Averkiou (2019) Controlled bubble-enhanced heating with added microbubbles, *International Society for Therapeutic Ultrasound, Barcelona, Spain.*

POSITIONS OF RESPONSIBILITY

- **Lead Organizer**, AI Journal Club, University College London Hospitals *2022-Present*
- **Academic Representative**, Biomedical Engineering MSc, University College London *2021-2022*
- **Team Member**, Bioengineers Without Borders: Hydration Monitor Team, University of Washington *2019*
- **President**, Research & Innovation Club, LWIT *2015-2016*

AWARDS

- **Dean’s List**, University of Washington *2017-2020*
- **Certificate of High Scholarship**, University of Washington *2018-2019*
- **WASLA Merit Award**, University of Washington *2018*