

Sierra Bonilla

FT PhD Candidate, UCL
PT Computational Scientist, UCLH

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SUMMARY

PhD Student at University College London (UCL) | UKRI CDT Funded Scholar in Foundational Artificial Intelligence | Researcher in 3D Reconstruction | Computational Scientist at University College London Hospitals | MSc in Medical Physics & Biomedical Engineering | R&D Intern | Teaching Assistant

EDUCATION

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

EXPERIENCE

- University College London Hospitals NHS Foundation Trust** 2022 - Present
Band 7 Clinical Scientist (Computational Scientist - Pre-Registered) London
 - Responsible for medical device IT, programming, SQL database management, AI integration in clinical settings
 - Improved efficiency through data cleaning, migration, and the development of an automatic ticket classifier
 - Working on implementing level of urgency analysis and automatic response options utilizing an in-house fine-tuned LLM
- Otonexus Medical Technologies** 2020 - 2021
Medical Device Design Engineer/Acoustic Engineer Seattle
 - Streamlined transducer calibration process, reducing time per device from 3 hours to 2 minutes using MATLAB, Python, and acoustic/electrical technology
- University of Washington** 2018 - 2020
Research Assistant & Teaching Assistant Seattle
 - Research Assistant: Conducted image optimization, CAD, and MATLAB simulations
 - Teaching Assistant: Instructed BIOEN 327 2019: Fluids & Materials Laboratory and BIOEN 420 2020: Medical Imaging
- University of Washington Medical Center** 2019
Full Stack Development Consultant Seattle
 - Created a web application using Python to track and rate disease progression for Cerebral Palsy patients
- Intellectual Ventures** 2016
Mechanical Engineer Intern Seattle

TECHNICAL SKILLS

- Programming Languages:** Python, CUDA, PowerShell, HTML & CSS, SQL (Microsoft SQL Server and SQLite)
- Tools and Frameworks:** Jupyter, PyTorch, Scikit-learn, VS Code
- Operating Systems:** Windows, macOS, Linux (particularly for IT system management)

PUBLICATIONS & TALKS

- Peer-reviewed Conference Article 2024: Bonilla, Sierra, Shuai Zhang, Dimitrios Psychogyios, Danail Stoyanov, Francisco Vasconcelos, and Sophia Bano.** (2024) "Gaussian Pancakes: Geometrically-Regularized 3D Gaussian Splatting for Realistic Endoscopic Reconstruction."
arXiv:2404.06128. Presentation at Medical Image Computing and Computer Assisted Intervention Conference 2024 in Marrakech, Morocco.
- Summer School Talk 2024: Bonilla, Sierra, Shuai Zhang, Dimitrios Psychogyios, Danail Stoyanov, Francisco Vasconcelos, and Sophia Bano.** (2024) "Gaussian Pancakes: Geometrically-Regularized 3D Gaussian Splatting for Realistic Endoscopic Reconstruction."
arXiv:2404.06128. Presentation at International Computer Vision Summer School 2024 in Sicily, Italy.
- Keynote Talk 2024: Bonilla, Sierra** (2024) "3D Reconstruction in Medical Imaging."
Presentation to Medical Physics and Biomedical Engineering Department at University College London Hospitals.
- 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.
- Conference 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.
- Conference 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 Team Organizer**, Image Matching Challenge 2024, CVPR Workshop *2024*
- **Lead Organizer**, AI Journal Club, University College London Hospitals *2022-2023*
- **Team Member**, Bioengineers Without Borders: Hydration Monitor Team, University of Washington *2019*
- **President**, Research & Innovation Club, LWIT *2015-2016*

AWARDS

- **G-Research Grant**, Monetary Grant for Presentation at ICVSS 2024 *2024*
- **UCL Research Studentship in Foundational Artificial Intelligence**, Full-time MPhil/PhD Scholarship *2023-2027*
- **Dean's List**, University of Washington *2017-2020*
- **Certificate of High Scholarship**, University of Washington *2018-2019*
- **WASLA Merit Award**, University of Washington *2018*

COMMUNITY INVOLVEMENT

- **Summer Showcase Organizer & Speaker**, Foundational Artificial Intelligence CDT Showcase *2024*
- **MedICSS Volunteer**, Medical Image Computing Summer School *2024*
- **Science of Surgery Volunteer**, Public Engagement Science of Surgery Day *2024*
- **Academic Representative**, Biomedical Engineering MSc, University College London *2021-2022*