

Syed Talha Bukhari

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📄 [stalhabukhari.github.io](https://github.com/stalhabukhari)

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Education

- 2022 to Present **Ph.D. Computer Science**, [Purdue University](#), West Lafayette IN (US).
 - Fulbright Scholar.
- 2018 to 2020 **M.S. Electrical Engineering**, *CGPA: 3.96/4.00*, [LUMS School of Science and Engineering \(LUMS SSE\)](#), Lahore (PK).
 - Graduated in Dean's Honor List.
 - Thesis/Research Focus: Deep Learning for 3D mpMRI Segmentation.
 - Coursework includes: Convex Optimization, Stochastic Systems, Information Theory & Machine Learning, Computer Vision Fundamentals, Deep Learning, Advanced Digital Signal Processing, Robot Motion Planning.
- 2014 to 2018 **B.S. Mechatronics & Control Engineering**, *CGPA: 3.94/4.00*, [University of Engineering and Technology \(UET\)](#), Lahore (PK).
 - Graduated with highest distinction, UET Gold Medal awardee, Best Senior Year Project (thesis).
 - Coursework includes: Robotics, Control Systems, Digital Image Processing, Digital Signal Processing, Signals & Systems, Intelligent Systems, Embedded Systems, Numerical Methods, Hydraulics & Pneumatics.

Work Experience

- 8/2021 to 7/2022 **Machine Learning Software Engineer**, [Pointivo, Inc.](#) (US).
 - Worked, as part of the Cognitive Services PK team, on Deep Learning-based approaches to automate physical asset inspection via Machine Vision.
 - Maintained and extended the company's python-based data pipelines and AI services.
 - Curated datasets of 2D drone images, ortho-mosaic images, and 3D point clouds for ML training and evaluation.
 - Surveyed ML research literature as part of task planning and scoping, and R&D for ML models.
 - Deployed containerized ML models via Amazon Web Services (AWS).
- 7/2020 to 9/2021 **Research Associate**, [Department of Electrical Engineering](#), LUMS School of Science and Engineering, Lahore.
 - Led the development of Deep Learning pipelines for medical image segmentation.
 - Co-supervised and guided M.S. and Ph.D. students working in the group.
- 1/2019 to 6/2020 **Graduate Research Assistant**, [Department of Electrical Engineering](#), LUMS School of Science and Engineering, Lahore.
 - Led the development of Deep Learning pipelines for medical image segmentation.
 - Part-time employment as a full-time graduate student.
- Spring 2020 **Graduate Teaching Assistant**, *EE516: Foundations of Deep Learning*, LUMS School of Science and Engineering, Lahore.
 - Designed coursework and graded components with the instructor, in the inaugural offering of the graduate course.
 - Focused on imparting fundamental skills relevant to implementation of Deep Learning in PyTorch.
- 07 to 08/2017 **Intern**, [Centre of Excellence in Solid State Physics](#), University of the Punjab, Lahore.
 - Involved in device fabrication and characterization process at micro level.
 - Supervisor: [Prof. Dr. Shahzad Naseem](#)

Technical Skills

- Languages** [Python](#), [MATLAB](#), [C++](#), [Kotlin](#), [Julia](#)
- Frameworks** [PyTorch](#), [TensorFlow](#) (1.x & 2.x), [pandas](#), [OpenCV](#), [JAX](#) (basics)
- Embedded** [Proteus](#) (ISIS & ARES), [Arduino](#), [MPLab](#) (basics)
- Robotics** [V-REP](#) (with MATLAB), [ROS](#) (basics)

CAD [SolidWorks](#), [AutoCAD](#)

Other [L^AT_EX](#), [Git](#), [Docker](#), [Bash](#) scripting

Talks/Workshops

- 08/2022 **Participant**, [Oxford Machine Learning Summer School \(OxML 2022\)](#), [AI for Global Goals](#) in partnership with [University of Oxford's Deep Medicine](#) and [CIFAR](#).
○ Selected from a pool of world-wide applicants.
○ Comprised of a ML Fundamentals session followed by a 4-day interactive session on topics in machine learning, with specialized applications in health (MLxHealth).
- 11/2021 **Participant**, [Online Asian Machine Learning School \(OA^{MLS}\)](#), [The 13th Asian Conference on Machine Learning \(ACML 2021\)](#).
○ Selected from a pool of applicants from the Asia-Pacific region.
○ A two-week interactive session, providing exposure to topics in theoretical and applied machine learning.
- 11/2020 **Speaker**, [Seminar on Deep Learning](#), University of Engineering & Technology, Lahore.
○ A one-day seminar covering fundamental concepts in Machine Learning and Deep Learning, targeted at senior undergraduate students.
- 12/2019 **Co-Instructor**, [Short Course on Machine Learning and Deep Learning](#), [2nd Annual Workshop on Big Data and Cloud Computing \(BigC 2019\)](#).
○ A one-day workshop/seminar covering fundamental concepts in Machine Learning and Deep Learning, and implementation of Neural Networks in Python with TensorFlow.

Awards & Honors

- 2022 Fulbright Ph.D. Scholarship (Purdue).
- 2020 LUMS Dean's Honor Roll for distinction in graduate studies.
- 2018–20 LUMS Merit Scholarship Award for graduate studies (100% tuition waiver).
- 2018 UET Gold Medal for top rank in undergraduate studies.
- 2014–18 UET Dean's Honor Roll (×8) for distinction in undergraduate studies.
- 2018 1st Position Senior Year Project (awarded by department): [Automatic Retail Checkout via Deep Learning](#).
- 2017–18 Senior Year Project approved for funding by [National Grassroots ICT Research Initiative](#).
- 2014 College Best Student of the Year (12th grade).
- 2008 [International Kangaroo Mathematics Contest](#): 27th position in the country (3rd in school) out of 10,556 participants at the *Benjamins* level.

Publications

BUKHARI, Syed T. ; DIN, Hassan M.: E₁D₃ U-Net for Brain Tumor Segmentation: Submission to the RSNA-ASNR-MICCAI BraTS 2021 Challenge. In: *International MICCAI Brainlesion Workshop* Springer, 2021. – (Available at <https://arxiv.org/abs/2110.02519>)

BUKHARI, Syed T. ; MOHY-UD-DIN, Hassan: A Systematic Evaluation of Learning Rate Policies in Training CNNs for Brain Tumor Segmentation. In: *Physics in Medicine & Biology* [IF:3.61] (2021). <https://iopscience.iop.org/article/10.1088/1361-6560/abe3d3>

BUKHARI, Syed T. ; AMIN, Abdul W. ; NAVEED, Muhammad A. ; ABBAS, Muhammad R.: *ARC: A Vision-based Automatic Retail Checkout System*. <https://arxiv.org/abs/2104.02832>. Version: 2021