

Sara Bouhali

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EDUCATION

University of Houston, Houston, TX

PhD, Computer Science

Fall 2024

GPA: 3.93

Relevant Coursework: Digital Image Processing, Machine Learning, Computer Vision

The National School of Computer Science and Systems Analysis (ENSIAS), Rabat, Morocco

Master of Science, Computer Science and Engineering, Option: Business Intelligence.

July 2019

Preparatory Classes for Higher Studies, Mohammedia, Morocco

Associate of Science, Mathematics, Physics, Engineering Sciences.

May 2016

PROFESSIONAL EXPERIENCE

Institute of Molecular Medicine - The University of Texas Health Science Center at Houston

Mar 2022 - Present

Research Assistant

- Conducted 3D image acquisition process for an ongoing clinical trial on dermal backflow as a predictor of cancer-related lymphedema.
- Led the design and development of a project focusing on 3D rendering and analysis of dermal backflow.
- Applied advanced image processing algorithms to monitor dermal backflow, ensuring detection of early lymphatic system dysfunction.
- Prepared research grant proposals on proposed methods.

Computational Biology & Medicine Laboratory - University of Houston

Aug 2020 - Present

Graduate Research Assistant

- Designed and benchmarked a contrastive learning-based approach for key point identification (anatomical landmarks) on 3D surface scans of human torsos with an accuracy over 80%, facilitating the use of objective metrics for monitoring physiological changes.
- Executed a precise and automated registration technique on 3D surface scans of human torsos, ensuring accurate alignment and data consistency for further analysis of multi-visit longitudinal data.
- Conducted comprehensive analysis to assess fat graft survival rates as an emerging reconstructive technique among breast cancer survivors, contributing valuable insights for oncoplastic surgeons to enhance treatment outcomes.
- Implemented a contrastive learning-based approach for 3D image retrieval, optimizing accuracy in medical imaging of breast cancer survivors.
- Directed a research analysis to evaluate psychological impacts of breast reconstruction on breast cancer survivors, utilizing psychometric tools for a comprehensive analysis toward actionable findings.
- Collaborated with academics and clinical investigators in a multidisciplinary team (MBRRP) to develop tools for improving breast cancer survivors' health-related quality of life.

Department of Computer Science - University of Houston

Aug 2019 - May 2022

Graduate Teacher Assistant

- Developed and delivered course materials and interactive lab sessions in C++ Programming, Python Programming, and Advanced Digital Image Processing to enhance 80-100 students understanding and engagement.
- Offered personalized academic support and oversaw consistent evaluations of student work for fair assessment.

Quantitative Imaging Laboratory - University of Houston

Feb 2019 - May 2019

Research Intern

- Analyzed scene properties in presence of real-world anomalies in CCTV videos.
- Developed a probabilistic model for anomaly detection in videos based on object co-occurrence in a scene.

SELECTED PROJECT EXPERIENCE

Computer Vision Project

- Automated solution to detect parking lot vacancies based on image descriptors using Python and OpenCV.

Machine Learning Project

- Handwritten digits recognition using Python and Keras.
- Opinion extraction from product reviews using Python and NLTK.
- Detection of spam emails based on content using Python and Keras.

Data Analysis Project

- Internet browser build activity analysis and forecasting using time series, Python, Plotly, Pandas, scikit-learn.

LEADERSHIP EXPERIENCE

Computers in Biology and Medicine - Remote

April 2024 – Present

Reviewer

- Evaluated and provided constructive feedback on submitted manuscripts.

IEEE Student Branch - Rabat, Morocco

March 2017 - March 2018

Publicity Coordinator

- Co-established IEEE student branch at ENSIAS school of computer science.
- Bridged connections between student members and local professionals, and academics by hosting a variety of events related to IT.
- Led the publicity committee in promoting events organized by the IEEE student branch.

SKILLS

Skills: Python, Machine Learning, Deep Learning, Pytorch, Computer Vision, Segmentation, Classification, Data Visualization, SQL, Academic writing.

Languages: English (Advanced), French (Native fluency), Arabic (Native fluency)

HONORS AND AWARDS

SPIE Medical Imaging Conference Scholarship

Dec 2023

Graduate Tuition Fellowship at the University of Houston

Fall 2019 - Present

Graduated with a First-Class Honors in MSc Computer Science

July 2019