77 North Point Drive, Apt 315
Boston, MA, 02125

NEHA GOYAL

+1 (617) 763-8326
sneh.goyal.22@gmail.com

https://www.linkedin.com/in/neha-goyal-696a30107
https://nehagoyal1994.github.io/webgl-demo/bird_flocking/bird.html

EDUCATION

Boston, MA   **University of Massachusetts - Boston**   **January 2020 – December 2021**

- M.S. in Computer Science, GPA: 3.9
- Graduate Coursework: Analysis of Algorithms; Artificial Intelligence; Machine Learning; Computational Theory; Applied Cryptography; Graphics; Biomedical Signal and Image Processing; MS thesis in Image Registration with and without labelled mask

Jaipur, India   **Jaipur Engineering College and Research Centre**   **July 2013 – May 2017**

- B.Tech. in Computer Science, GPA: 3.9
- Undergraduate Coursework: Operating System; Cloud Computing; Database Architecture; Computer Networks; JAVA programing; Data Mining and Ware Housing; Compiler; Data Structures and Algorithms; Mobile Computing; Unix Network Programing; Real Time Systems; Digital Image Processing

EMPLOYMENT

Research, Graduate Fellowship   **University of Massachusetts, Boston**   **January 2021 – December 2021**

Image Registration with and without labeled mask

Description: In Connectomics, researchers are creating the wiring diagram of the brain at nanoscale. For this, 2D electron microscopy (EM) images need to be aligned to 3D volumes. To investigate if adding biological features can improve existing alignment methods, we use mitochondria masks data to guide the registration procedure in real-time.

- Worked with 2D EM images with nanometer resolution for image registration process.
- Using feature matching methods in OpenCV and deep learning frameworks, Monai to align images with and without labeled mask data.
- Used CNN encoder-decoder and implemented supervised and unsupervised neural network models to investigate image alignment with Monai.
- Performed data augmentation on EM images using TensorFlow and Python to create the input datasets.
- For data visualization Matplotlib, Seaborn libraries were used to draw comparisons between different alignment results.
- All the work is opensource and available on GitHub.
  (mito/Registration_with_feature_matching_methods.ipynb at main · nehagoyal1994/mito (github.com))
- Member of machine psychology research lab at University of Massachusetts, Boston.

Environment: Python, TensorFlow, Keras, OpenCV, SIFT, ORG, BRISK, FREAK, FAST, Seaborn, Matplotlib, Jupyter.

Software Engineer   **Accenture Solutions**   **September 2017 – June 2019**

- Created and deployed the OBIEE (Oracle Business Intelligence) server automatically on AWS and EXA environments in Oracle Cloud Infrastructure (OCI) using Ansible and Python in just 8 weeks.
- Delivered an automated code which converted English language to Norwegian language using JAVA that increased the readability of the forms and reports by 98%.
- Reduced the deployment and execution time on EXA and QA from 3 days to 8 hours by designing and implementing automation framework.
- Supported front-end development team in resolving coding bugs. Coded new solutions that increased the availability and scalability by 75% and 60%.

Environment: Python, Ansible (DevOps), JAVA, JS, OBIEE server and tool, OCI, EA Spark, Apache Server, CSS.

Languages and Technologies
- Languages: Python; C++; C; Java; JavaScript; MySQL; R; Ansible(DevOps)
- Supervised Learning: Linear/Logistic Regression; Random Forests; Support Vector Machines
- Unsupervised Learning: K-Means; Hierarchical Clustering
- Deep Learning: CNN; RNN
- Cloud environments: AWS; OCI
- Tools: 3D Slicer, Jupyter
- Frameworks: Monai; Voxelmorph; XTK; WebGL
- GitHub; Git; Stash; JIRA
- Libraries: Pandas; OpenCV; SciKit-Image; TensorFlow, PyTorch, Keras

Projects
- **Artificial Intelligence (**Spring 2021). Gaming project using alpha-beta pruning algorithm and the game can be played with single as well as multi player. Python
- **Bird Flocking** (Fall 2020): Visually demonstrate how collective intelligence can be modeled by giving boids simple decision-making procedures and letting them interact with the environment using boids algorithm. The project is now selected as the part of STEM – EDX out of 28 projects that were submitted. Three.js, JS (STEM EDX: More than one way to do it - University of Massachusetts Boston (umb.edu))
- **Cloud Computing** (2017). Developed cloud services such as storage; software; infrastructure; platform dependent software with docker and automated these services using Ansible. Created, configured, and deployed DNS, NFS, FTP, Telnet, SSH, DHCP, Apache, MongoDB servers for providing the cloud services efficiently and instantly. Python, Docker, JS, HTML, CSS.

- **Instructor (2015 – 2016):** Taught JAVA as Special Interest group courses; average ratings of 4.8 out of 5.0.
- **Red Hat Certified Engineer** and **Red Hat Certified System Administrator** (CN:160-140-976).

Professor Daniel Haehn
email **:** Daniel.Haehn@umb.edu