Ameya Patil

ameyap2@cs.washington.edu | ameyabp.github.io | linkedin/ameya-patil | +1(301) 674 1837

EDUCATION

University of Washington, Seattle   WA, USA
Ph.D. in Computer Science, Advised by **Dr. Leilani Battle**   Sept 2021 - Present

  – **Research Interests:** Information Visualization, Computer Graphics, Interactive Data Analytics for environmental use cases

University of Maryland, College Park   MD, USA
Ph.D. in Computer Science, Advised by **Dr. Leilani Battle**, GPA: 4.00/4.00   Jan 2021 - May 2021

  – **Research Interests:** Information Visualization, Computer Graphics, Interactive Data Analytics
  – **Relevant coursework:** Game Design

University of Maryland, College Park   MD, USA
M.S. in Computer Science, GPA: 3.84/4.00   Aug 2018 - Dec 2020

  – **Relevant coursework:** Machine Learning, Geometric Computer Vision, Advanced Computer Graphics, Physically Based Modelling, Simulation & Animation, Interactive Data Analytics, Computational Geometry, Interactive Technologies in HCI, Database System Architecture and Implementation

Birla Institute of Technology and Science - Pilani   Goa, India
B.E. (Honors) in Computer Science, GPA: 8.24/10.00   Aug 2012 - May 2016

  – **Electives:** Data Mining, Data Storage Technologies and Networks, Creative Multimedia

ONGOING RESEARCH

- **Exploratory Visual Analysis Systems for Large Scale Graph Data**   UMD-MIT-Tufts-Recorded Futures

  Graph analytics face two major challenges - using the right kind of visualization and scaling to bigger datasets. Interactive graph visualization systems need to address both these issues. To this end, I am developing a declarative specification language for quick authoring of interactive multi-variate graph visualizations, by choosing from a wide range of templates for layout and visual graph summarization techniques. Further, I am also investigating spatial indexing, graph data structures and dedicated graph databases like Neo4j to improve the scalability of interactive graph visualizations. This includes making the visualization computation, data storage and data retrieval, more efficient.

PUBLICATIONS

1. A. Aguinaldo, P.-Y. Chiang, A. Gain, **A. Patil**, K. Pearson and S. Feizi, "Compressing GANs using Knowledge Distillation", *CoRR, vol. abs/1902.00159, 2019. arXiv:1902.00159*

TEACHING

- **Head Teaching Assistant** at University of Maryland, College Park   Fall 2018, Fall 2019, Fall 2020
  Computer Systems Architecture (CMSC411)

- **Teaching Assistant** at University of Maryland, College Park   Spring 2019, Spring 2020
  Introduction to Data Visualization (CMSC498O)

- **Teaching Assistant** at University of Maryland, College Park   Spring 2021
  Advanced Data Structures (CMSC420)

Experience

AVIZ, Inria Saclay, France
Research Intern, advised by **Dr. Jean-Daniel Fekete** Summer 2021

- Worked on understanding the efficacy of confidence intervals for decision making using progressive bar charts
- Proposed and studied the efficacy of two new visualization designs for progressive bar charts
- Studied the performance of humans vs automated statistical test for the task of answering questions based on progressive visualizations

Fraunhofer CESE MD, USA
Research Assistant Intern, advised by **Dr. Marcel Schäfer** Summer 2019

- Worked as Java developer on the PocketSecurity project which collects data to perform user behaviour analysis
- Identified and implemented critical data probes to be collected for better analysis and improved existing probes

NVIDIA Pune, India
System Software Engineer - C/C++ July 2016 - July 2018

- Developer for Shadowplay - a gameplay sharing app with features like record, screenshot, broadcast and coplay
- Worked on multi-threaded and multi-processes features, GPU driver code and render pipeline
- Enhanced and monitored the automated software testing suite and guided an intern for the same

NVIDIA Pune, India
Intern July 2015 - Dec 2015

- Device Filter Drivers - C/C++: Implemented end-to-end user input redirection from input devices to a specific application using filter drivers and device notifications
- Z-buffer - Python: Implemented aesthetic visual effects such as zoom burst using the depth data of images

Projects

- **Physically Based Clustering Visualization** Oct 2019 - Dec 2019

  Implemented a data analysis/visualization tool with interactions modelled on real-life physical forces using the D3-Force API. The specific use case targeted was evaluating word embeddings created by different methods, where words closer in the vector space belonged to the same cluster.

- **Adding shadows to a scene using CNN** April 2019 - May 2019

  Trained a network to generate shadows in a scene, given the scene without shadows, the depth map and the light source position map. Used the pix2pix model for the task.

- **GoRoutines vs OpenMP** Oct 2018 - Dec 2018

  Comparatively evaluated the parallelization constructs of Go language and OpenMP using various task distribution schemes among threads. 2D image convolution operation was used for the study.

- **Data Sonification** Jan 2016 - Apr 2016

  Investigated and implemented possible correlations between digital images and digital sounds for image encoding. Characterized aural encoding channels similar to visual encoding channels.

- **LEAP Motion App Development** Mar 2015 - Apr 2015

  Programmed the LEAP Motion sensor to create a hand gesture based virtual music instrument dashboard. Used JAVA Swing for the UI and MIDI files for the audio.

SKILLS

- **Programming Languages:** C, C++, Java, Python
- **Libraries/Frameworks:** Pytorch, OpenCV, MPI, OpenMP
- **Miscellaneous:** DSLR Photography, Adobe Lightroom

LANGUAGES

- **Marathi:** Native
- **Hindi:** Fluent
- **English:** Fluent

EXTRACURRICULAR ACTIVITIES

- **Volunteer at Ekta Nagar Residents Welfare Association**   2017 - 2018
  Aided in the organisation of community activities and administrative affairs of my residential society

- **Organising Committee Member at Quark (BITS - Pilani Goa Technical Festival)**   2015
  Directed the photo and video coverage of the technical festival spanned over 3 days

- **Member at The Department of Photography, BITS-Pilani Goa**   2012 - 2015
  Performed photo and video coverage of campus events over 3 years and mentored new inductees