Ameya Patil

ameyapatil249@gmail.com | ameyabp.github.io | linkedin/ameyaspatil | +1 (206) 698 5910

I design and build interactive data visualization and analysis systems to cater to the growing need of human-in-the-loop understanding of large scale network data, using an interdisciplinary approach of combining learnings from the fields of Systems & Human Perception.

Experience

National Center for Atmospheric Research — Boulder CO, USA
Data Visualization Intern, advised by **Marlee Smith**, **Dr. Helen Kershaw** and **Dr. Moha El Gharamti** — Summer 2023

- Designed HydroVis - an interactive analysis dashboard for the WRF-Hydro hydrological forecasting model
- Implemented the dashboard backend using Python-Flask and XArray, and the renderer using D3.js
- Presented work in IEEE VIS Viz4Climate + Sustainability Workshop, 2024 as a demo paper

University of Washington — Seattle WA, USA
PhD Student, advised by **Dr. Leilani Battle** — Feb 2022 - April 2023

- Performed a design study of domain experts in whale research to gather analysis requirements
- Designed WhaleVis - an interactive analysis dashboard for historical whale hunting data
- Implemented the dashboard backend using DuckDB in Observable notebook, and the renderer using D3.js
- Published work in IEEE VIS 2023 and presented the same at the International Whaling Commission Scientific Committee Meeting 2023, Bled, Slovenia and IEEE VIS 2023, Naarm, Australia

AVIZ, Inria — Saclay, Paris, 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
- Published work in TVCG 2023 and presented the same at IEEE InfoVIS 2022, Oklahoma City, USA

Fraunhofer CESE — College Park 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 MH, India
System Software Engineer - C/C++ — July 2016 - July 2018

- Worked as developer for Shadowplay - a gameplay sharing app to recrod, screenshot, broadcast and coplay video games
- 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 MH, 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

Skills

- **Programming Languages:** C/C++, Java, Python, Javascript, SQL, Cypher, GSQL
- **Libraries/Frameworks:** D3.js, Matplotlib, Vega-lite, Altair, OpenCV, MPI, OpenMP
- **Soft Skills:** Collaboration, Public Speaking, Mentoring
- **Extra-Curricular:** Digital Photography, Photo and Video Editing

Languages

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

Education

University of Washington, Seattle (UW) — WA, USA
Ph.D. in Computer Science, Advised by **Dr. Leilani Battle**, GPA: 4.00/4.00 — Jan 2021 - Present

- **Thesis:** Benchmarking and Designing Scalable Interactive Network Visualization and Analysis Systems
- **Relevant Coursework:** Computing for Conservation, Computer Science Education seminar, Game Design

University of Maryland, College Park (UMD) — 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 (BITS) — 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

Publications

1. Z. Dong, T. Barrett, **A. Patil**, Y.Shoda, L. Battle, E. Wall, "A Design Space of Behavior Change Interventions for Responsible Data Science", Proceedings of the Conference on Intelligent User Interface (IUI), 2025. DOI: 10.1145/3708359.3712140. *pdf*

2. Z. Dong, **A. Patil**, Y.Shoda, L. Battle, E. Wall, "Behavior Matters: An Alternative Perspective on Promoting Responsible Data Science", Proceedings of the ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW), 2025. DOI: 10.1145/3710932. *arxiv:2410.17273*

3. **A. Patil**, M. Smith, H. Kershaw, M. El Gharamti, "Interactive Visualization of Ensemble Data Assimilation Forecasts for Freshwater Floods", IEEE VIS Viz4Climate + Sustainability Workshop Demo, 2024. *pdf*

4. **A. Patil**, Z. Rand, T. Branch, L. Battle, "WhaleVis: Visualizing the History of Commercial Whaling", IEEE VIS Short Papers, 2023. DOI: 10.1109/VIS54172.2023.00028. *arxiv:2308.04552*

5. **A. Patil**, Z. Rand, T. Branch, L. Battle, "WhaleVis: A New Visualization Tool for the IWC Catch Database", International Whaling Commission SC/69A/GDR/04, 2023. *archive.iwc.int/SC/69A/GDR/04*

6. **A. Patil**, G. Richer, C. Jermaine, D. Moritz, J.-D. Fekete, "Studying Early Decision Making for Progressive Bar Charts", IEEE Transactions on Visualization and Computer Graphics, 2023. DOI: 10.1109/TVCG.2022.3209426. HAL: *https://hal.science/hal-03738461/*

7. 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*