Aryan Kaul

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Research Interests

Mixed-methods HCI; human–AI collaboration, co-creation, and trust; ability-based and inclusive design; creativity support; AI-augmented design tools; accessibility integration in design workflows.

Education

Columbia University New York, NY

Master of Science, Computer Science *January 2026 - May 2027*

- Exploring agentic productivity tools, and human–AI trust in the Computational Design Lab (Dr. Lydia Chilton).
- Advised research with Dr. Zhuo Zhang: VLM-assisted Android GUI testing to identify risky or deceptive UI flows.

University of Maryland College Park, MD

Bachelor of Science, Computer Science (GPA: 3.76/4.0) *May 2023*

- Minor in Business Analytics, Robert H. Smith School of Business
- Dean's List, 2019–2023
- Office of Multi-Ethnic Student Education (OMSE) Academic Excellence Society, Member
- **Selected Coursework:** Advanced Data Structures; Advanced Linear Algebra; Algorithms; Applied Probability and Statistics; Calculus III; Computer Systems; Cryptography; Data Science; Database Design; Network Security; Programming Handheld Systems; Programming Languages; Spectral Graph Theory; Technical Writing

Talks

Global Accessibility Awareness Month (GAAM) Conference, *Amazon* *May 2025*

- Presented a methods-focused case study (60+ attendees) on modernizing large, legacy mobile apps for accessibility: identified failure modes (fragile UI widgets, siloed ownership, regressions during framework/tooling upgrades) and detailed a staged-migration protocol with parity checklists, guardrail metrics, and explicit rollback criteria.
- Demonstrated how a cross-platform design system, coupled with targeted instrumentation, standardizes semantics and curbs design drift across Android/iOS/Web in Kindle; reported adoption and review-time savings; framing informed by mentorship from JoAnna Hansen (Director of Accessibility, Amazon Stores).

Directed Reading Program (DRP) Conference, *University of Maryland* *May 2021*

- Presented a proof sketch of Brouwer's Fixed Point Theorem by contradiction, showing that assuming no fixed point yields a retraction $D^2 \to S^1$ and a fundamental-group contradiction, and summarized why the existence result is broadly useful; work completed in collaboration with Dr. Vlassis Mastrantonis (Cornell Math); materials: slides.

Experience

Software Development Engineer, Kindle Jan 2024 – Jan 2026

Amazon *Seattle, WA*

- Increased engagement on Kindle's large-screen devices by 2% for 10M readers by migrating core customer-facing features, introducing a new search and navigation experience, and improving in-book interactions such as bookmarks and highlights using SOLID principles, staged rollouts, and A/B testing in a 1M-line codebase.
- Drove Kindle's native Android design system from 0 to 1 by running component audits and advising Design and Product on extending Material3; partnered with a Principal Engineer to ship 10+ accessible components and tokens and introduced AI-driven workflows that reduced design drift by 70% and saved months of engineering effort.
- Championed accessibility, advising on semantics, focus, and contrast in early Figma reviews. Resolved 90 tickets, added integration tests, and reviewed 200+ PRs to ensure ARIA parity and compliance beyond WCAG 2.2 AA.
- Improved stability, observability, and CI/CD reliability by triaging and fixing crashes/ANRs, instrumenting SLIs in AWS CloudWatch, enforcing dependency hygiene, static analysis (SpotBugs), and formatting gates (Spotless).

Software Development Engineer Intern, Kindle May 2022 – Aug 2022

Amazon *Seattle, WA*

- Applied showcase-driven development for Colored Bookmarks, building a prototype to align UX flows, API surface, and edge cases with design/PM while verifying color-blind-safe tokens and screen reader support.
- Implemented the feature on Android/Fire Tablet platforms using legacy Android patterns like MVC (Fragments, XML) and test-driven development (JUnit, Robolectric, Espresso) to achieve 80%+ coverage.

Software Engineer, Full-Stack Jul 2023 – Dec 2023

Programmers.io *Remote*

- Developed 8 features in an ASP.NET Core MVC application, including folder management, audit fields, and robust CRUD across 4 areas, reducing negative customer reviews by 40% through clearer UI flows.
- Introduced role-based authentication with ASP.NET Identity and added React/Chart.js dashboards; improved responsiveness via SQL Server tuning and client-side caching with documented rollout steps.

Engineering Intern, Infrastructure Solutions Group May 2021 – Sep 2021

Dell Technologies *Hopkinton, MA*

- Enhanced visibility by aggregating telemetry from over 700 programs across seven business units, surfacing metrics for executive quarterly planning, risk, and OKR alignment, reporting to James Haager (Chief of Staff, AMD).
- Partnered with more than 40 stakeholders to drive a cross-portfolio initiative by integrating live Jira data into Confluence using Atlassian APIs and query language, enabling dashboards with real-time status reporting.

Co-Founder, BigThink AI Jan 2021

University of Maryland *College Park, MD*

- Founded and scaled a student AI organization to over 100 members, leading weekly meetings, recruiting core officers, running interviews, managing budgets and event logistics, and organizing and delivering talks on AI advances across healthcare, finance, media, and education with follow-up discussions and member resources.

Visiting Intern Jun 2018

CERN *Geneva, Switzerland*

- Selected for an in-person internship at the European Organization for Nuclear Research cern.ch led by Dr. Archana Sharma; curriculum covered LHC operations and detector systems (CMS/ALICE, AMS), with seminars from experts like Dr. Peter Jenni (Higgs Boson) and Dr. Manjit Dosanjh (medical applications).

Teaching, Mentoring, and Volunteering

Teaching Assistant, Discrete Structures, *University of Maryland* *Aug 2021 – May 2022*

- Planned and delivered recitations, problem sets, and exam reviews with Dr. Justin Wyss–Gallifent and Clifford Bakalian; aligned outcomes-based assessments; synchronized cross-section grading via rubric calibration.
- Led weekly discussions and guided problem solving for a 40+ student section; held office hours and one-on-one check-ins to strengthen proof writing, induction technique, and mathematical reasoning; used example-driven explanations inspired by the course Programming Foundations: Discrete Mathematics (Peggy Fisher, 2016).
- Authored calibrated rubrics, proctored midterms/finals, and managed grade processing for a 650+ student cohort; ensured transparent feedback and consistent application of collaboration and academic-integrity policies.

Peer Mentor, Carillon Communities, *University of Maryland* *Aug 2020 – Dec 2020*

- Facilitated weekly IDEA101 Studio, leading small-group work and check-ins for first-year students; coordinated mentoring plans with Melissa Del Rios and Brooke Smith, and awarded a Carillon Mentorship Badge.
- Completed 2-credit IDEA398C coaching seminar; applied mentoring frameworks to design-thinking sprints, peer feedback, and retrospectives; co-planned agendas with the Studio instructor and documented outcomes.

Volunteer Reading Tutor, *Reading Partners* *Aug 2023 – Present*

- One-on-one tutoring for Title I elementary students using a structured curriculum; emphasized English comprehension/fluency, tracked progress through interactive activities. Used STEM hooks to spark curiosity.

Volunteer Technology Tutor & Analyst, *Enable India* *August 2018*

- Coached adults with low vision and motor impairments in job-readiness technology (Microsoft Office, email, web navigation, accessibility), building digital confidence and economic independence; data analyst for the national helpline, categorizing call logs (∼15 calls/day) and producing weekly traffic summaries to guide staffing/outreach.

Pedagogy and Training

Teaching Techniques in Computer Science, *Department of Computer Science, University of Maryland*

- Completed evidence-based teaching seminar with Dr. Jandelyn Plane; applied active learning, equitable assessment, and inclusive facilitation in Discrete Structures by running grading norming sessions and item analysis on proofs, building calibrated rubrics and peer-feedback workflows that increased participation and inter-rater consistency.

Inquiry Approach to Teaching STEM, *Department of Education, University of Maryland*

- Inquiry-based STEM practicum with school placements: planned and taught student-centered lessons using backward design; incorporated formative checks (exit tickets, think-pair-share) and iterated lesson plans from pre/post concept checks and reflection notes to strengthen alignment between objectives and assessment.