

# SHABAB AHMED

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## Professional Profile

Ph.D. Candidate in Economics with expertise in *structural modeling, contract theory, and applied econometrics*.

Experienced in developing dynamic models, analyzing survey data, and translating research into actionable insights for business and policy decisions.

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## Education

### University of Washington, Seattle, WA

- **Ph.D. in Economics:** Expected June 2026 — **Research Focus:** Dynamic moral hazard, incentive design, empirical industrial organization; Passed general exam.
- **M.A. in Economics:** Dec 2022 — GPA: 3.89
- **M.S. in Applied Mathematics:** Jun 2020 — GPA: 3.87

### Colby College, Waterville, ME

- **B.A. in Mathematics and Economics:** May 2019 — Magna Cum Laude; GPA: Overall 3.93 · Econ 3.87 · Math 4.11
- **Honors:** Phi Beta Kappa, Distinction in Economics & Mathematics, Dean's List (6 semesters)

**Relevant Coursework:** Machine Learning, Econometrics, Contract Theory, Empirical IO, Scientific Computing, Numerical Optimization

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## Research Experience

### Amazon, Bellevue, WA — Economist Intern (July 2025 – Oct 2025)

- Designed and implemented structural models to estimate customer preferences using large-scale survey data.
- Developed and refined calibration techniques to improve model accuracy and business insights.
- Built a simulation platform to evaluate counterfactual business scenarios and inform strategic planning.
- Authored and presented a technical and business report to senior stakeholders.

### University of Washington, Seattle, WA — Ph.D. Candidate, Economics Department (June 2020 – Present)

- Developed dynamic models examining moral hazard under evolving preferences.
- Analyzed implications for incentive design and policy frameworks (e.g., Lose from Winning model for NFL draft).
- Presented research in seminars and passed the general exam.

### Colby College, Waterville, ME — Independent Researcher / Research Assistant (Jan 2019 – Spring 2019)

- Investigated vulnerabilities in the RSA cryptosystem; implemented and analyzed attacks in Python.
  - Implemented Évariste Galois' algorithm in Sage and presented findings at a departmental colloquium.
  - Developed a game-theoretic model for cricket strategy and empirically validated Nash equilibrium predictions using match data.
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## Teaching & Leadership Experience

### University of Washington, Seattle, WA

- *Graduate Teaching Assistant and Independent Instructor*, Economics & Physics Departments (Fall 2019 – Present): Led discussion sections, graded assignments, and held review sessions.
- *Summer Study Section Instructor*, Math & Science Upward Bound (Summer 2024): Mentored students in research projects and guided solar car construction.
- *Intramural Soccer Referee*, UW Recreation (Winter 2023 – Present): Officiated games and managed on-field conflicts to ensure safe game play.

### Colby College, Waterville, ME

- *Teaching Assistant*, Mathematics Department (Fall 2016 – Spring 2019): Held office hours and graded assignments for core mathematics courses.
  - *Student Tutor*, Economics Department (Fall 2016 – Spring 2019): Tutored students in macroeconomic theory and principles.
  - *Instructional Technology Services Tutor* (Fall 2015 – Spring 2019): Supported faculty and students with technology integration and makerspace tools.
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## Selected Projects

### [Tanking from the Start: Dynamic Moral Hazard with Change in Preference](#) (Fall 2024)

- Modeled how evolving preferences affect effort incentives in dynamic principal-agent settings, applied to NFL draft policy.

### [NBA Decade Comparison: PCA and Machine Learning Analysis](#) (Winter 2020)

- Used PCA and supervised learning to classify NBA players by era and position, revealing shifts in play style.

### [Game Theory in Cricket](#) (Spring 2019)

- Developed a formal model of bowler-batsman interactions and built an original dataset from archived commentary to empirically evaluate Nash equilibrium predictions.

### [Attacks on RSA](#) (Winter 2019)

- Implemented multiple RSA attacks in Python; analyzed computational complexity and proposed security improvements.
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## Technical Skills

**Programming & Tools:** Python, R, Stata, MATLAB, Sage, SQL, Mathematica, LaTeX, Qualtrics

**Other Software:** WordPress, Microsoft Office Suite (Advanced Excel)

**Languages:** English (Fluent), Bengali (Fluent), Hindi (Conversational)