Youssef Raad

Phone: +45 91 55 86 63
Email: youssefraad@hotmail.dk
LinkedIn: linkedin.com/in/youssef-r-26167ba5
GitHub: github.com/YoussefRaad-mathecon

Profile

Mathematics-Economics last semester graduate student with a focus on quantitative finance with strong skills in modeling, programming, and analytical reasoning. Deep experience with stochastic processes, asset pricing, and optimization, supported by independently developed research and teaching experience. Seeking to apply my analytical edge and programming expertise in a fast-paced environment.

Education

- **M.Sc. in Mathematics-Economics**, University of Copenhagen *2024 – 2026 (Expected)*
  Expected Thesis Defense: Feb 2026
  Specialization: One-Factor Short Rate Modeling & Markov-Regime-Switching
  Grade Average: 11.0
- **B.Sc. in Mathematics-Economics**, University of Copenhagen *2020 – 2023*
  Focus in stochastic calculus, financial econometrics, and numerical methods
- **Roskilde Gymnasium** *2016 – 2019*
  Mathematics A, Physics A, Chemistry B

Work Experience

- **Teaching Assistant**, University of Copenhagen *2025*
  - Personally selected by Professor Rolf Poulsen for graduate-level course: Continuous Time Finance 2.
  - Evaluated 45+ students across large assignments (∼10–40 pages), under tight academic deadlines.
  - Delivered feedback on mathematical finance and stochastic calculus; addressed student inquiries on advanced asset pricing.
- **Substitute Teacher**, Hedegårdenes Skole *2025*
  - Taught across subjects and age groups; maintained effective learning in dynamic environments.
  - Demonstrated adaptability, structure, and communication under pressure.
- **Service Roles (Student Jobs)**, Fakta, Jem & Fix, FK Distribution *2013 – 2016*
  - Built early work ethic, discipline, and responsibility from a young age.

Projects

Thesis Prep: Regime-Switching CIR with ARHMM

- Developed a novel regime-switching extension of the CIR model using autoregressive hidden Markov methods.

- Engineered full estimation routines in R and Python — over 3000 lines of code — to handle non-convex likelihood optimization.
- Applied the model to U.S. short-rate data, interpreting output through both statistical diagnostics and financial implications.

Heston Model Simulation (M.Sc. Project)

- Simulated stochastic volatility via Heston model using multiple schemes (log-Euler, Milstein, QE, Broadie-Kaya).
- Implemented FFT-based pricing methods for European options; compared pricing accuracy across discretization methods.

Asset Allocation for Trust Fund (Student Project)

- Designed and back-tested multiple portfolio strategies (mean-variance, risk parity, momentum overlays).
- Investigated factor exposure across subperiods (Fama–French inspired); analyzed performance net of fees.
- Provided investment strategy advice aligned with fund preferences and operational constraints.

Technical & Analytical Skills

- **Programming:** Python (Advanced), R (Advanced), LaTeX (Advanced), C/C++ (Basic)
- **Quant Finance:** Stochastic Calculus, Derivative Pricing, Time Series Analysis, Portfolio Theory
- **Numerical Methods:** Monte Carlo, Optimization (BFGS, Nelder-Mead, etc.), Fourier Pricing, Discretization Schemes
- **Software:** Git, Excel (Advanced), Office Suite

Relevant Coursework

Stochastic Processes, Time Series Analysis, Derivative Pricing, Financial Econometrics, Portfolio Optimization, Corporate Finance, Macroeconomics, Numerical Optimization

Languages

- **Danish**: Native **English**: Native **Arabic**: Intermediate (Oral)