

# Ruben Paul Bosma

Honours Computer Science Student  
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## EDUCATION

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- **Stellenbosch University** Stellenbosch, South Africa  
*BSc Honours in Computer Science* 2025
- **Stellenbosch University** Stellenbosch, South Africa  
*BSc Computer Science (Minor in Economics)* 2024
- **Parel Vallei High School** Somerset West, South Africa  
*National Senior Certificate – 4 distinctions, Top Achiever List* 2021

## SKILLS

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- **Programming:** Java, C, C#, Python, Dart, Matlab, MySQL, HTML/CSS, ARM Assembly
- **Frameworks/Tools:** Git, Flutter, Firebase, Unity, Flask, Next.js, Docker, Linux, Firestore, Google AdMob, BurpSuite, JohnTheRipper, Ray RLLib, TensorFlow/PyTorch.
- **Concepts:** Data Structures, Algorithms, Networks, Databases, Concurrency, FSM, Econometrics, Game Theory
- **Methodologies:** Agile Workflow, CI/CD Pipelines

## PROJECTS - AVAILABLE ON GITHUB

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- **HitInfo App:** Self-published Flutter app using Dart, Firestore, and AdMob, available on Google Play Store.
- **Portfolio Website:** Visual-novel-style portfolio site, hosted on GitHub Pages.
- **Unity Third Person Controller:** Comprehensive third-person controller in C#.
- **Flutter App Development:** Collaboratively designed and implemented frontend and architecture. Received a reference from Louisa Venter.
- **Networking Projects:** Multi-client chat, RBUDP/TCP file sharing, NAT box, VOIP, and P2P anonymous file sharing in Java/JavaFX.
- **StackOverflow Scraper:** Python scraper using Flask and BeautifulSoup to emulate the StackExchange API.
- **Mosaic Evolutionary Algorithm:** EA for arranging tiles to match a target image; includes elitism, mutation, and perceptual fitness metrics.
- **Hybrid PSO for LSOPs:** Baseline, subspace, stochastic, and hybrid PSO variants to improve performance on large-scale benchmarks; hybrid showed best scalability.
- **Guide Selection Strategies in PSO:** Evaluated deterministic vs probabilistic strategies (elitist vs tournament/roulette) to balance convergence speed and search diversity.

## REFERENCES

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- **Louisa Venter:** Product Manager at Mezzanine – lventer@mezzanineware.com

## ABOUT ME

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I am a final-year BSc Honours student in Computer Science at Stellenbosch University, graduating in 2025. I have practical experience developing and deploying applications using modern technologies such as Flutter, Dart, Firestore, and Unity. I am driven by a constant desire to learn and solve complex puzzles. In my free time I enjoy working on personal projects, whether it be Unity games or apps. I also enjoy playing video games and spending time with family and friends.