Gerdus Benadè

Carnegie Mellon University, Pittsburgh PA

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RESEARCH INTERESTS

Computational social choice and fair division. Algorithmic game theory and discrete optimization.

QUALIFICATIONS

- **Carnegie Mellon University** — Pittsburgh, PA
  PhD student in Operations research (Tepper School of Business) — *2014–present*
  - Thesis: Equality and efficiency in computational social choice
    Commitee: Ariel D Procaccia, John Hooker, R. Ravi, Jay Sethuraman.
  - Selected coursework: Linear/Integer/Constraint programming, Advanced integer programming, Combinatorial optimization, Graph theory, Networks and matchings, Algorithmic game theory, Theorist's toolkit, Machine learning, Applied machine learning, Modern convex optimization, Analytic performance modelling.

  MSc Operations Research (Tepper School of Business) — *2014–2016*

- **Stellenbosch University** — Stellenbosch, South Africa
  MSc Operations Research *(cum laude)* under JH van Vuuren — *2013–2014*
  BScHons Operations Research *(cum laude)* — *2012*
  - Received the Dean's Medal, awarded annually to the graduate with the best overall academic performance in the Faculty of Natural Sciences

  BSc Mathematics and Operations research *(cum laude)* — *2009–2011*

AWARDS & ACHIEVEMENTS

Egon Balas award: Best paper in OR/ACO (CMU) — 2017
Dean's Medal (Faculty of Natural Sciences, Stellenbosch University) — 2013

SCHOLARSHIPS & BURSARIES

William Larimer Mellon Fellowship — 2014
Zoltners Fellowship (Tepper School of Business, CMU) — 2014
National Research Foundation Innovation Honours, Masters Scholarship — 2012–2014
MIH Media Lab Bursary — 2012–2014
Stellenbosch University Academic Merit Bursary — 2009–2013

TEACHING HISTORY

- **Instructor: Introduction to programming in Python and R** — CMU
  Online course offered to Masters in Business Analytcs students — *Jun-Aug 2018*
- **Teaching assistant** — CMU, Stellenbosch University
  Various optimization courses with John Hooker, Zach Lipton etc. — *2012-2018*

FORMAL EMPLOYMENT HISTORY

- **Amazon** — Seattle,WA
  Research Scientist intern in Supply Chain Optimization Technologies — *May-Aug 2017*
- **Oprecon (now Xtranda)** — OR Consulting, South Africa
  Intern/programmer — *Nov 2011 – Jan 2012*

PUBLICATIONS & PRESENTATIONS

Peer-reviewed papers

7. Low-distortion social welfare functions. With AD Procaccia, M Qiao. *AAAI 2019, to appear.*
6. How to make envy vanish over time. With AD Procaccia, A Kazakhov, CA Psomas. *EC 2018.*
5. Optimization bounds from the branching dual. With JN Hooker. *INFORMS Journal of Computing - to appear.*
4. Making right decisions based on wrong opinions. With A Kanhg, AD Procaccia. *EC 2017,* pp. 267–284.
3. Preference elicitation for participatory budgeting. With S Nath, AD Procaccia, N Shah. *AAAI 2017*, pp. 376–382.
    * Awarded Egon Balas prize for best student paper in OR/ACO 2017 (CMU).
2. On the enumeration of mutually orthogonal Latin squares. With AP Burger, JH van Vuuren. *Proceedings of the 2013 ORSSA Annual Conference*, pp. 40–49, 2013.
1. Non-negative matrix factorization for learning alignment-specific models of protein evolution. With B Murrel, T Weighill, J Buys, R Ketteringham, S Moola, D Kaliski, T Hands, K Scheffler. *PLoS ONE*, 6(12), 2011.
    * Poster won the 'Best Undergraduate research' award at the 2011 SMBE in Kyoto.

Working papers

1. Fair division approaches to political districting. With AD Procaccia, E Stewart.
2. Efficiency and usability of participatory budgeting methods. With N Itzhak, N Shah, AD Procaccia and Y Gal.
3. Ranking students using misleading questions. With R Ravi, N Ho-Nguyen, W Gatterbauer.

Selected presentations

4. How to make envy vanish over time. With AD Procaccia, A Kazakhov, CA Psomas.
    - *Georgia Tech Discrete optimization seminar* (Atlanta, GA), Fall 2018.
    - *EC 2016* (Ithaca, NY), June 2018.
    - *CMU Theory Lunch*, Spring 2018.
3. Preference elicitation for participatory budgeting. With S Nath, AD Procaccia, N Shah.
    - *AAAI 2017* (San Francisco, CA), Feb 2017.
    - *INFORMS 2017* (Houston, TX), Oct 2017.
2. Optimization bounds from the branching dual. With JN Hooker.
    - *INFORMS 2016* (Nashville, TN), Nov 2016.
    - *INFORMS Optimization society conference 2017* (Denver, CO), Mar 2018.
1. HIV diagnostic service delivery in South Africa: Scenario analysis using a multi-objective version of the uncapacitated fixed-charge location model. With L Oosthuizen, J Bekker. *IFORS 2014* (Barcelona, Spain), July 2014.

REFERENCES

Prof. Ariel Procaccia — arielpro@cs.cmu.edu
Prof. John Hooker — jh38@andrew.cmu.edu
Prof. R. Ravi — ravi@andrew.cmu.edu
Prof. Ya'akov (Kobi) Gal — kobig@bgu.ac.il