Algorithmic Data Analysis
The Summary

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HIIT vision and mission

- Vision: Challenging to parse
- Mission: Connection to the vision?

Algorithmic Data Analysis mission

- ”Develop useful algorithmic data analysis methods for other sciences and for industry. This work involves both basic research in computer science and applied work on problems arising from applications.”

- Basic research in CS vs applications?

ADA research directions: examples

- Algorithmic analysis of flows
  - Logistics (RFIDs), migration, epidemiology, internet traffic, news flows, air flows, …
- Improving existing heuristics through theoretical understanding
  - Belief propagation, k-means, spectral methods, …
- Novel data analysis settings
  - Active learning, non-iid sources, …

Modus operandi

- Long-term vs short-term
  - Deeper theoretical understanding vs fast development of useful application tools
- Focus vs diversity
- Research cycle: Application → Formulation → Algorithms → Implementation → Application
- Collaboration with applications people

Partnerships

- Neighbouring sciences (e.g. statistics, mathematics, …)
- Leading groups in application areas
- International collaboration with other data analysis groups (EU, USA, …)
- Industry?

Teaching

- Who: everyone
- What: teaching advanced courses, instructing students (BSc,MSc,PhD), …
- How: research-based teaching

HIIT organisation

- HIIT BRU organisation is ok
- Applications from/collaboration with other programmes?

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Activities

- Research seminars/meetings
  - Interprogramme, programme, project, …
  - Formal (e.g. conference-style) and informal (e.g. whiteboard-only, work-in-progress)
- Free lunches! (Berkeley style)
- Promotion of active discussion of ongoing work
  - Interaction with other groups and application people