What makes a PhD project a success?
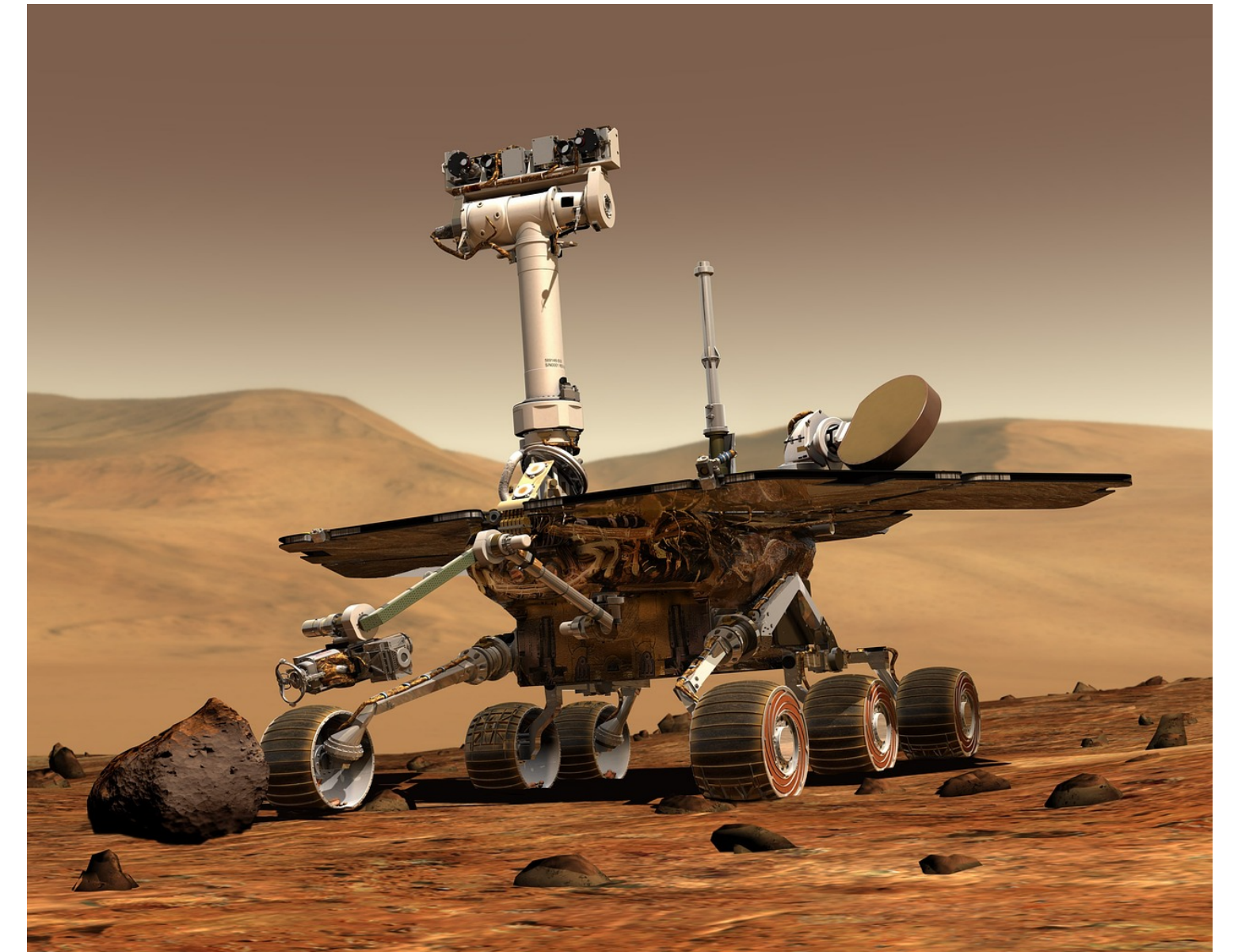
Early Career Researchers Workshop – ECSS 2024

Tim Quatmann

My PhD Project

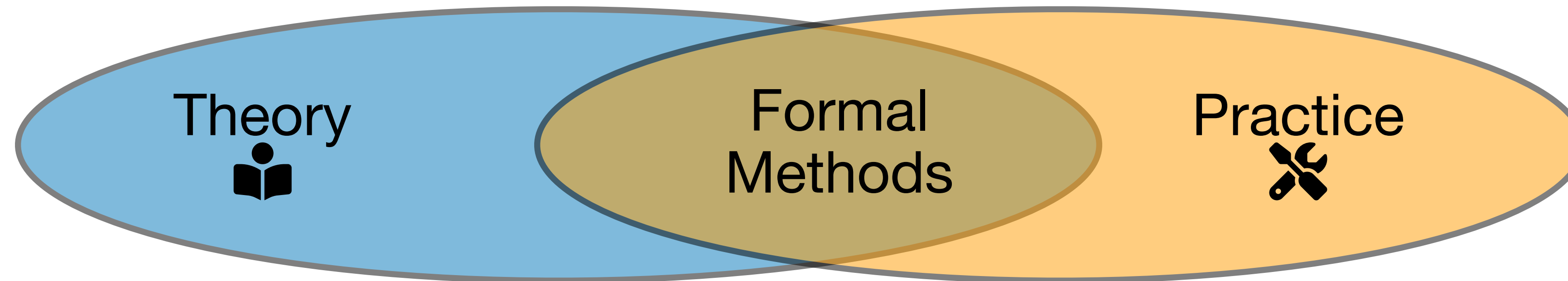**Topic: Verification of Multi-Objective Markov Models**
- Can an agent acting in an uncertain environment satisfy multiple performance criteria at once?
- Example: safe, fast, and efficient Mars rover
- Approach: formal methods / model checking

- Passed with distinction

- Nominated for Informatics Europe Best Dissertation Award

The Beginning

- **Formal methods:** mathematically verify system correctness

- bachelor thesis in verification of probabilistic systems

- got the chance to write a paper based on thesis

- accepted and presented at FM'2015

Support from supervisor and colleagues

- Learned a lot from all kinds of collaborators
  - Advisors
  - Colleagues / Co-authors
  - Students I supervise

- **Feedback sessions** were very(!) helpful

- Working together as a **team**
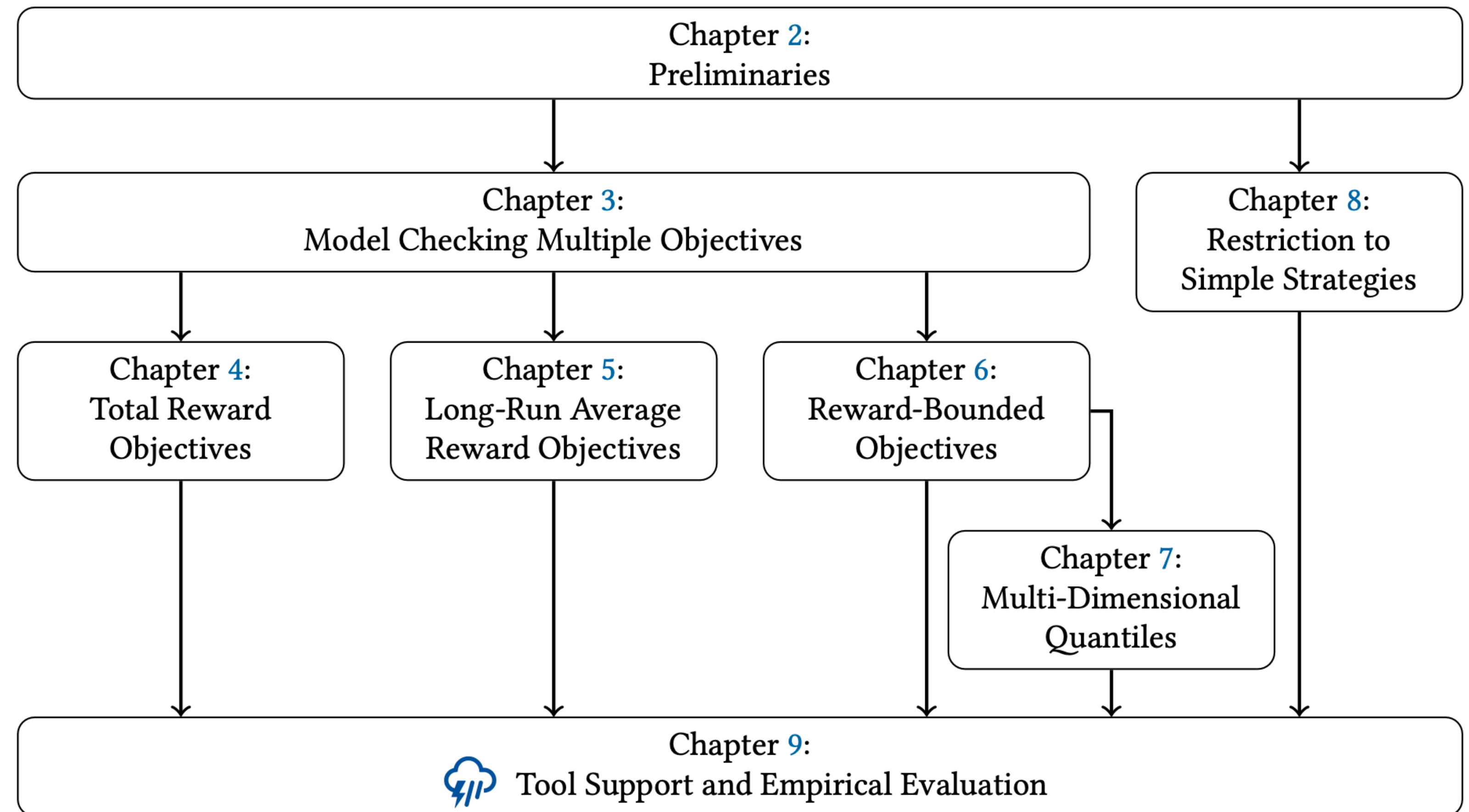
Networking

- Approximately one conference and one workshop per year
  - most fruitful_(for me): small, focussed workshops where people pitch **current ideas**

- Regular **research visitors** at our group
  - often resulted in collaborations

- Friendly, open-minded **community**
  - Healthy amount of competitiveness

Dissertation

- **Monograph**: coherent rewrite; not just a collection of papers

- **Goal:** Make it worth reading for everyone, not just the examiners

- Revisit / revise my own research

- No hard deadline or page restrictions

Final Points

- **Appreciation** is a great motivator

- Surround yourself with **people you can learn from**
  - value their advice

- Writing a dissertation is an excellent chance to **revisit your own research**

- Find **joy** in what you do
  - ... so others can enjoy your work, too!