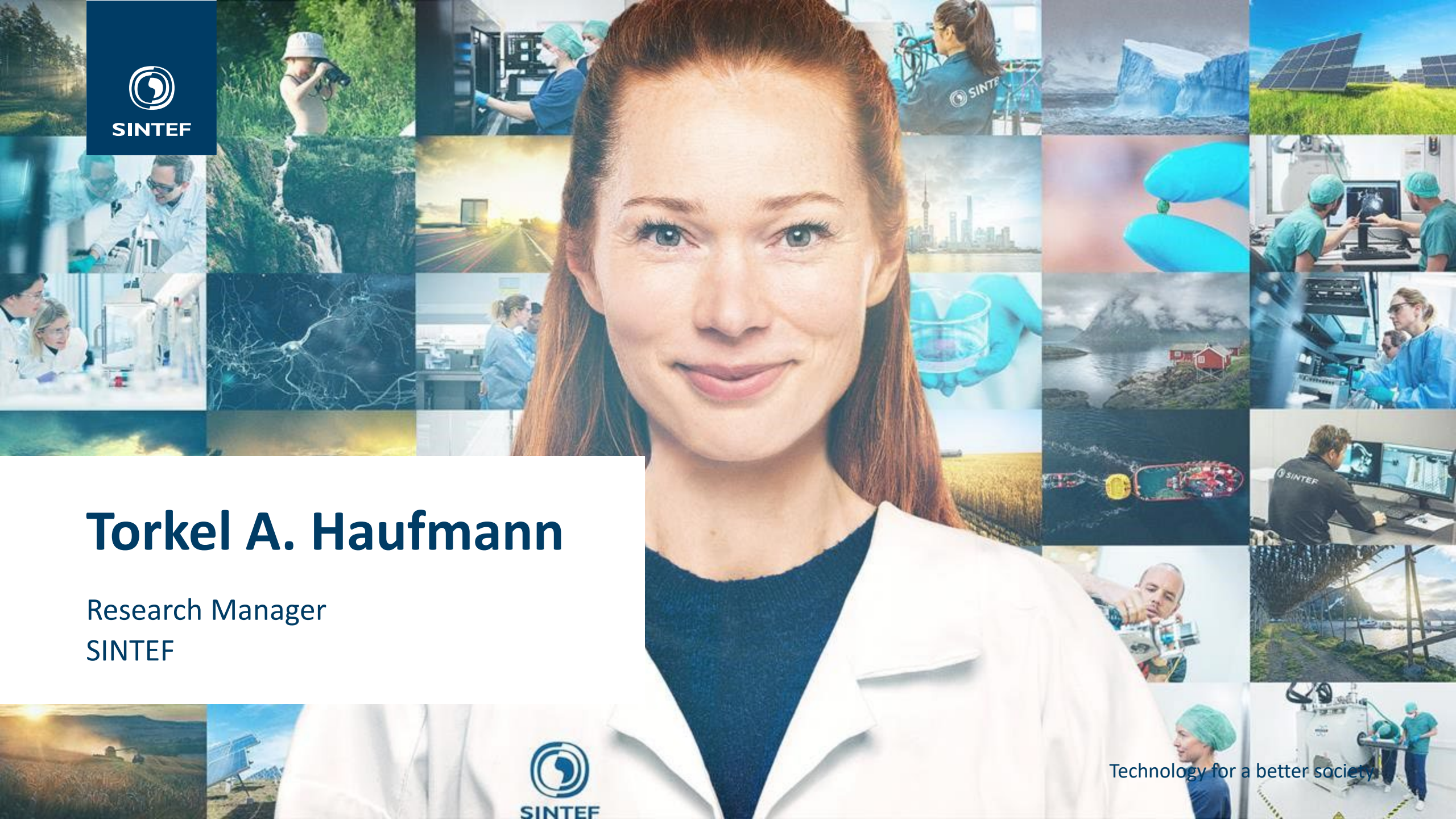


Torkel A. Haufmann

Research Manager
SINTEF

Technology for a better society

About me

- Born in Oslo, Norway
- Studies (all at University of Oslo)
  - BSc: MIT program, Computational Science (2006-2009)
  - MSc: Applied mathematics (2009-2011)
  - PhD: Supervised by Geir Dahl (2013-2018)
    - Combinatorial matrix theory, combinatorial optimization and polyhedral combinatorics
- I finished in 2011/2018

- Today I manage the research group on optimization in SINTEF Digital
  - 15 people
  - 25+ projects at any given time

The road to employment

- Never really had a plan
- I emailed the then-manager of the optimization group at the end of my MSc in 2011
- Two interviews followed…
- … then a position in SINTEF.
  - But not in the group I applied for!
- In 2013 I went on leave for my PhD, and returned in January 2018
  - You need a PhD in SINTEF.
- Since 2021 I've been the research manager for my group

The road to employment

- Was this just luck?
  - Partly ☺
  - But also: Funding situation, personal chemistry, references…

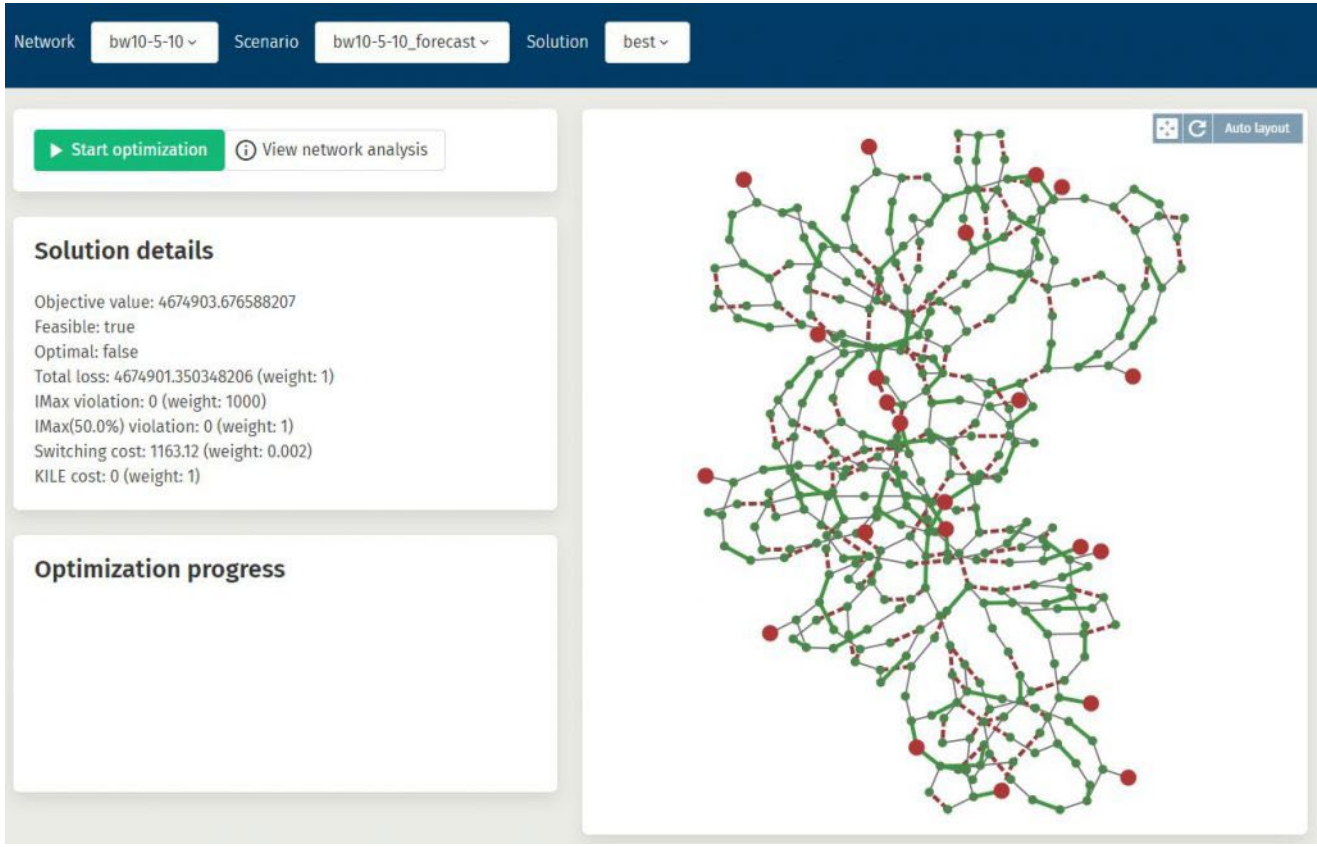
- Some specific advantages I had:
  - Not religious about my exact line of research
  - Interested in applications and working with "real world" demands
  - I enjoy programming
  - I generally enjoy *making things happen*
  - I can fake extroversion for long enough

SINTEF

- Research and development for the public and industry
- Project-based
- We pursue notions from idea to R&D to testing, and into use
  - Varied working days!
- I've worked in
  - Construction
  - The power sector
  - Healthcare
  - Transportation
  - … and more
- Other groups: Applied computational sciences, geometry, analytics and artificial intelligence, computer vision, computational sciences and engineering, and many more

Some concrete examples

- Using GPUs to solve the traveling salesman problem
- Synchronization of cameras surveilling a joint location
- How to configure the power grid
- Decision support for architects
- Planning of tasks for dumpers and other construction vehicles



But what do we do?

- Translate practical (industrial) problems into mathematics
  - Our group focuses on: Planning, scheduling, timetabling, design, *operations research*
- Producing solution methods for these – *software development*
- Interpreting results and making them useful
- Publications, conferences and other academic activity
- Lots of freedom!

- Mathematicians can model and abstract
  - But doing it well takes practice
  - And communicating it also takes practice.

On hiring

- Two things that matter more than I thought:
  - Personal attitude
  - Courses (!)
- Pay attention to the position call and to Facebook/LinkedIn etc.
  - We do look you up on, say, Google Scholar.
- We like someone who has a(n inkling of a) plan!
- Even in research, the "other stuff" is important.
  - Programming as a craft, making high-quality presentations, understanding business needs...
  - Building connections, knowing people, generating ideas…
  - Being a "salesperson". True in many ways!
- Be comfortable discussing your own work.
  - It's fine that you don't know how to do everything yet.
- Spend some effort on the particulars of the application.

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