Karlsruhe Institute of Technology

Welcome to GridKa School 2019

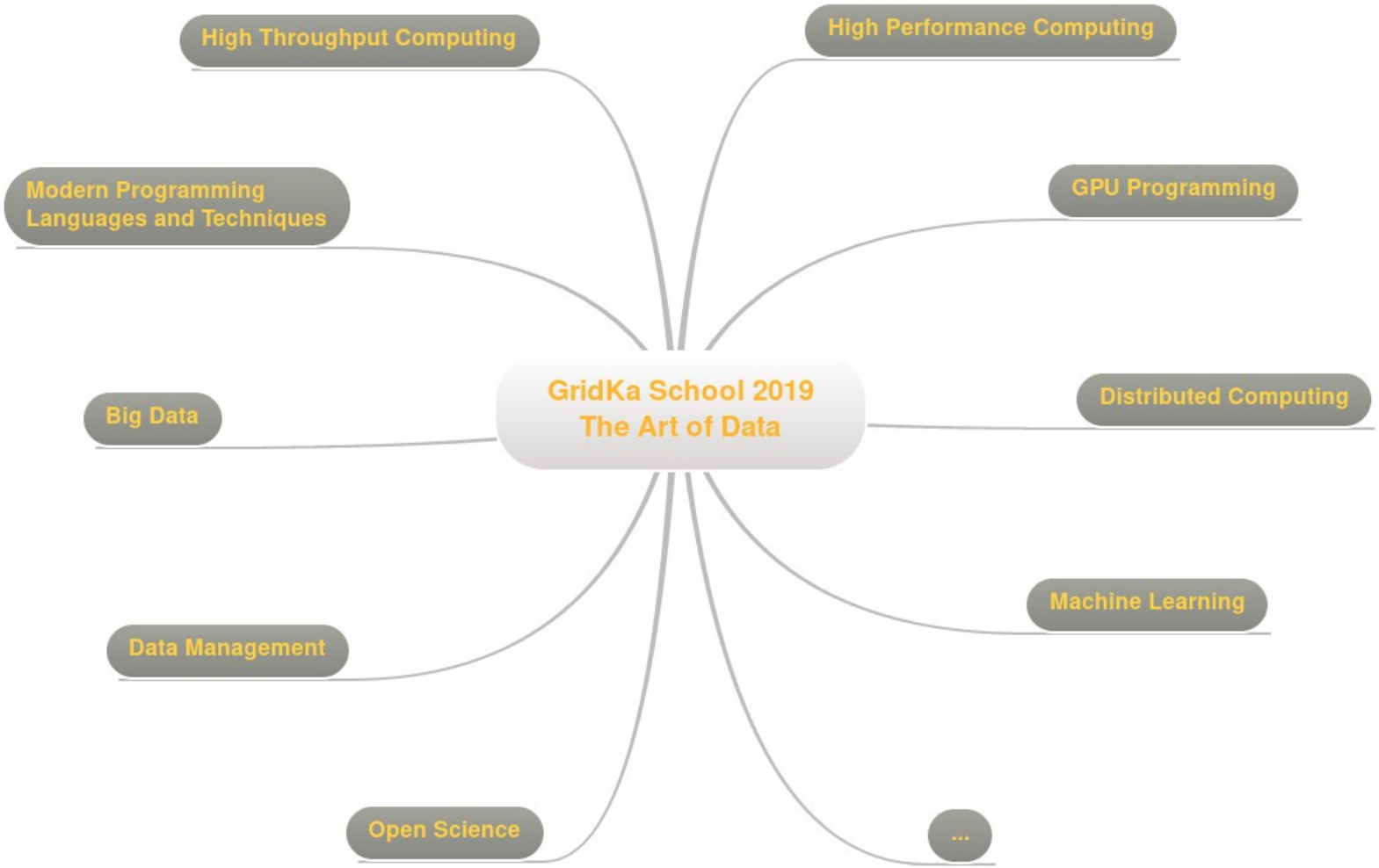
The Art of Data

René Caspart

26.08.2019

STEINBUCH CENTRE FOR COMPUTING (SCC)

Broad Range of Topics

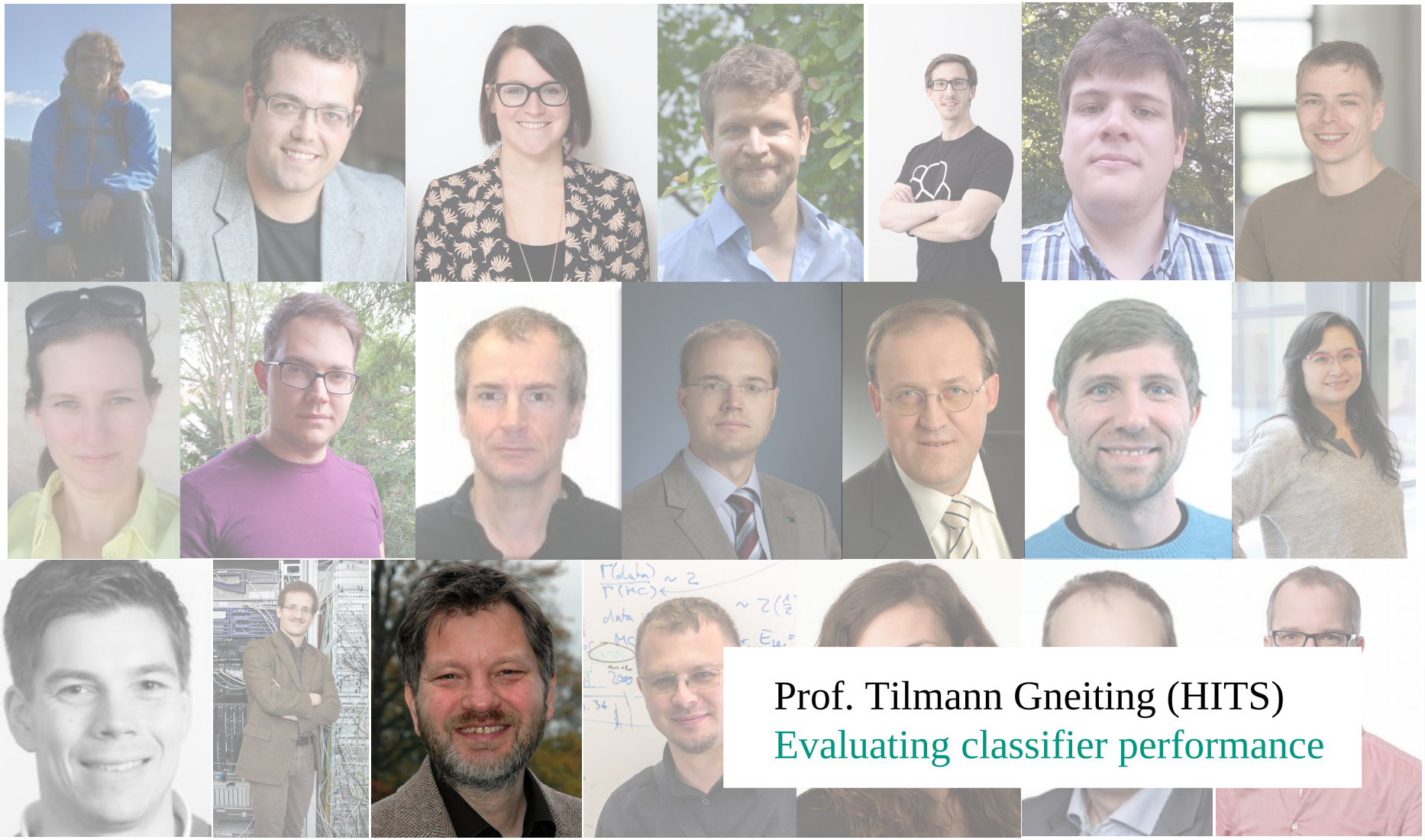


Speakers and Tutors

Speakers and Tutors

- 18 Plenary Talks
- 1 Evening Lecture
- 22 Speakers

Speakers and Tutors



Prof. Tilmann Gneiting (HITS)
Evaluating classifier performance

Speakers and Tutors

Kevin Gomez (Leipzig University)
Scalable Graph Analytics

Speakers and Tutors

Dr. Peter Bauer (ECMWF)

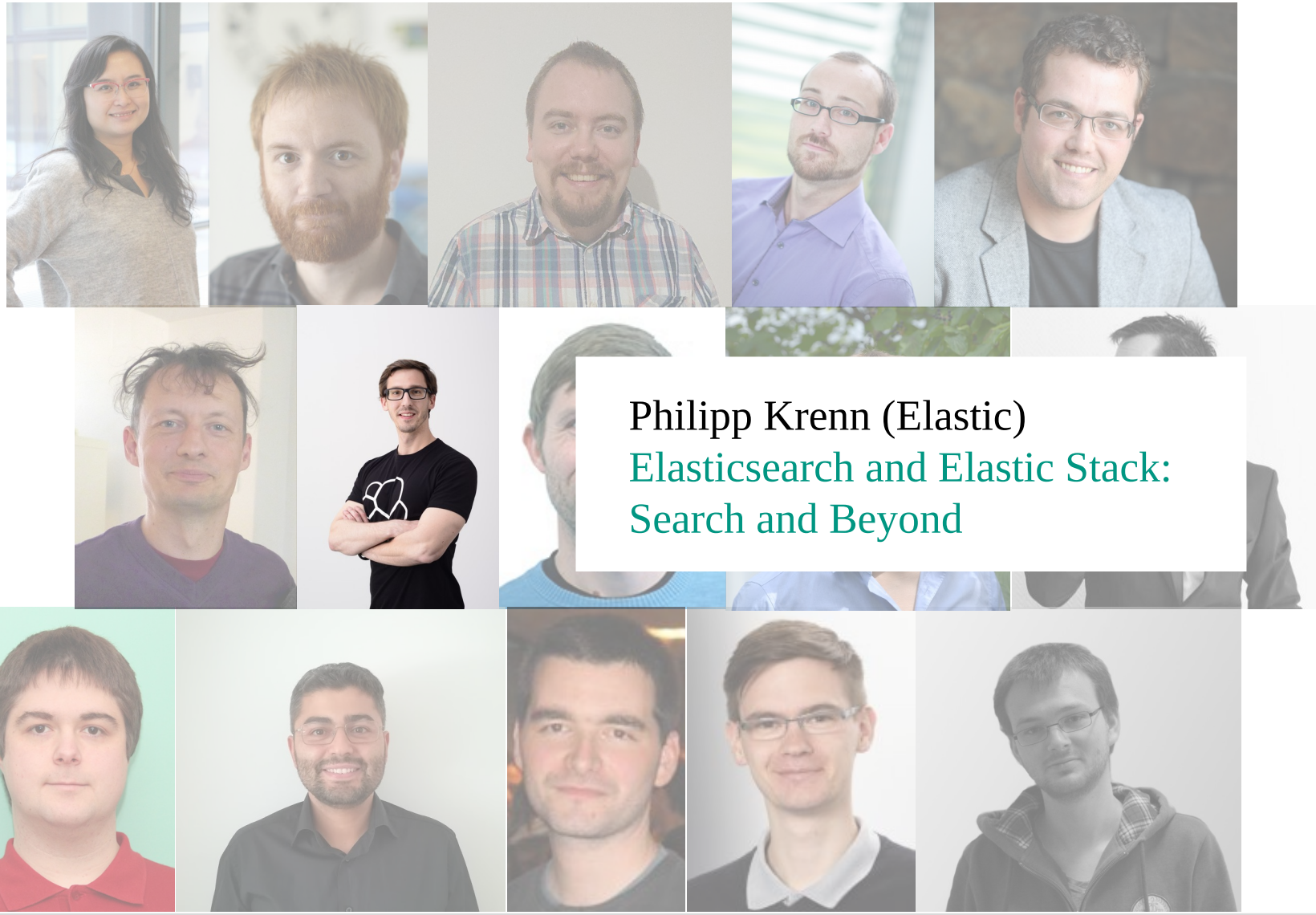
Why the future of weather and climate prediction will depend on supercomputing, big data handling and artificial intelligence

Speakers and **Tutors**

Speakers and **Tutors**

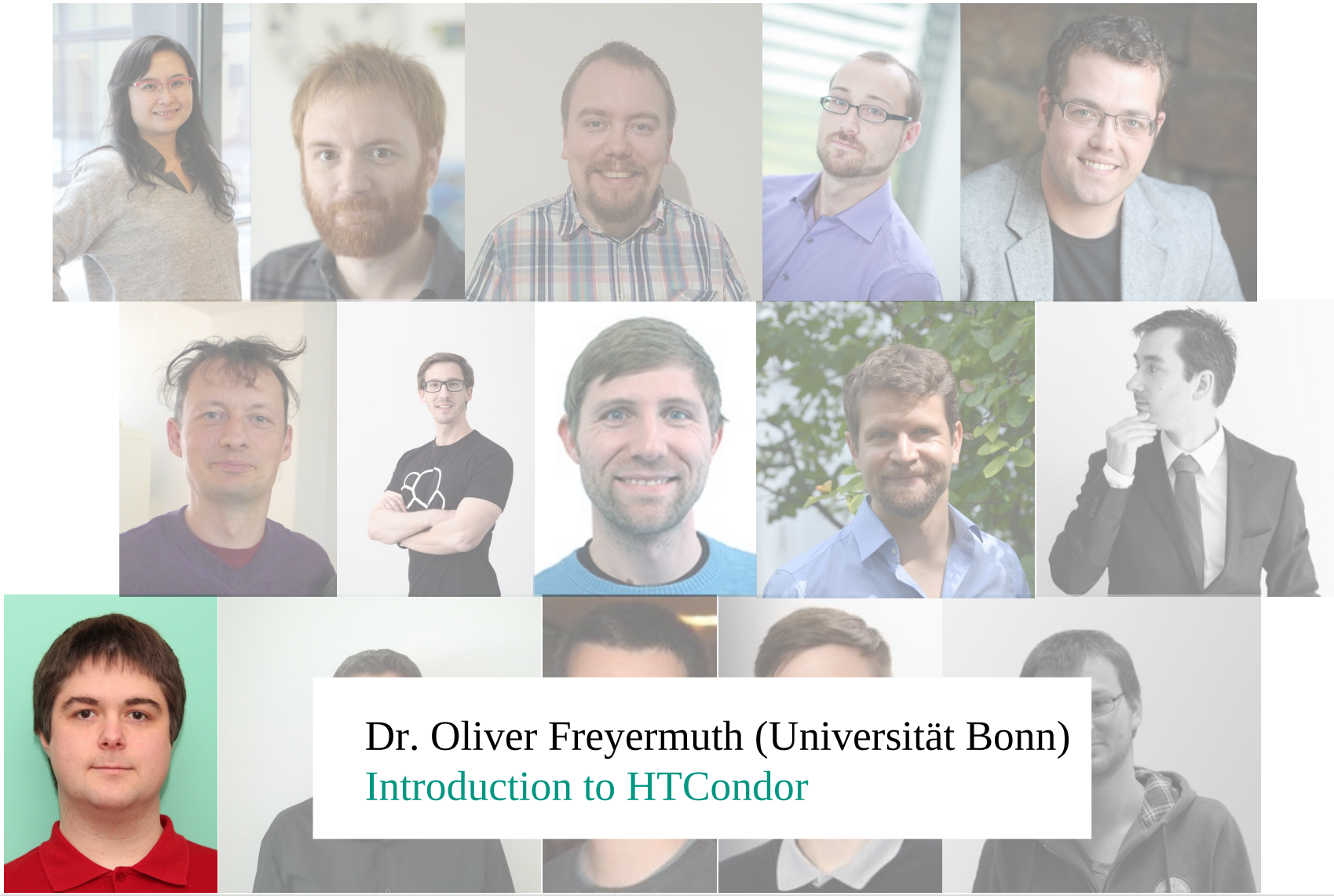
- 17 Tutorials
- 17 Tutors

Speakers and **Tutors**



Philipp Krenn (Elastic)
Elasticsearch and Elastic Stack: Search and Beyond

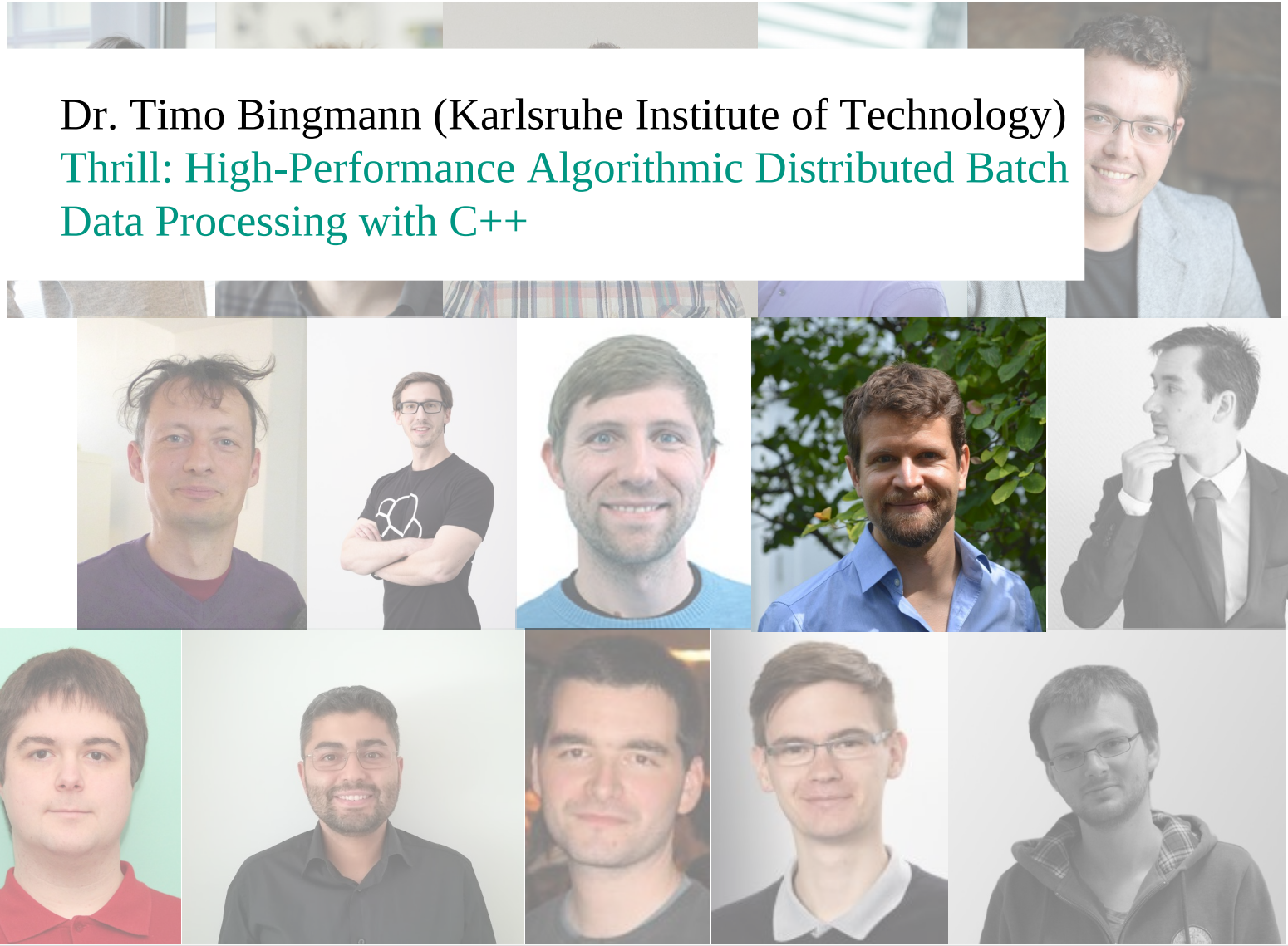
Speakers and **Tutors**



Dr. Oliver Freyermuth (Universität Bonn)
Introduction to HTCondor

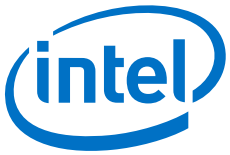
Speakers and **Tutors**

Dr. Timo Bingmann (Karlsruhe Institute of Technology)
Thrill: High-Performance Algorithmic Distributed Batch Data Processing with C++



Collaboration

- Contributions from many institutions



Thanks a lot to everyone!

Participants

- More than 120 registered participants
  - From different fields of science and industry
  - From more than 20 countries

Group Photo GridKa School 2018 – Christoph Heidecker

Schedule

- Morning Sessions
  - 9:00 to 12:00
  - Plenary talks at FTU Aula
- Afternoon Sessions
  - 13:15 to 18:00
  - Hands-on tutorials in FTU seminar rooms

GridKa School Location

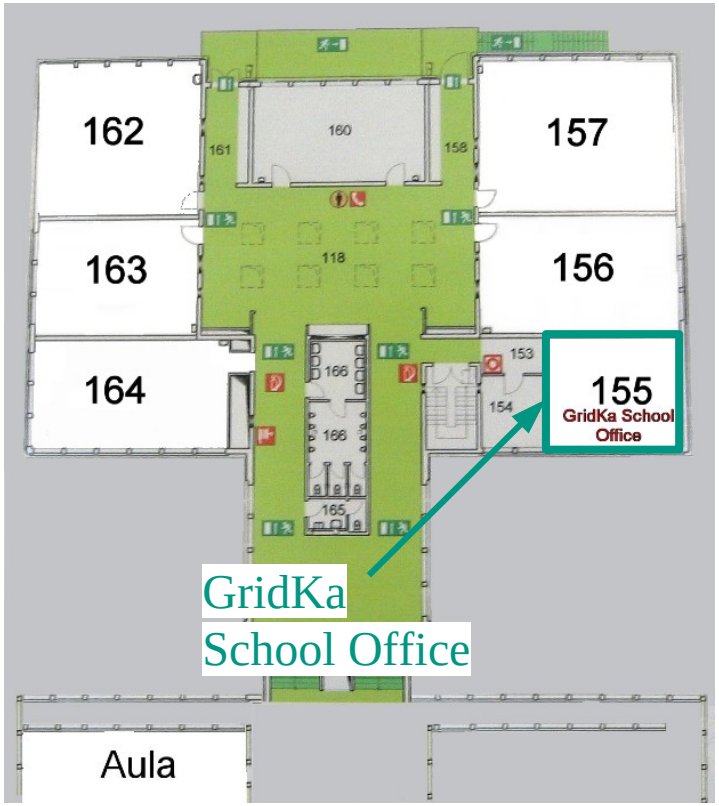
- All lectures and tutorials are in the FTU (Center for Advanced Technological and Environmental Training at KIT), which is the building where you are currently in
- All lectures take place in the Aula

FTU

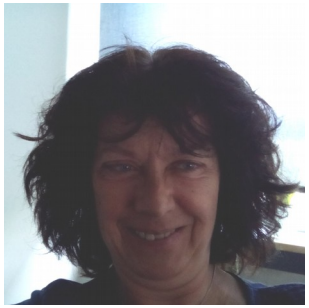
FTU Aula

GridKa School Location

- Coffee is served in the Aula and in front of the seminar rooms
- Plenary talks take place in the Aula
- Hands-on tutorials take place in the Aula and seminar rooms 116, 156, 157, 162, 163 and 164
- Electronic door plates will guide you
- School office in room 155
  - Central place for help, questions, printing, requests, ...



Melanie Ernst



Ingrid Schäffner

School Compute Resources

- Resources at KIT
  - OpenStack cloud on 3 racks
    - 90 hypervisors
    - 3 controllers
    - 6 VLAN – Software Defined Network
    - 2.880 CPU cores (including hyper threading)
    - 4.2 TB RAM
    - Up to 276 TB of storage at the LSDF at KIT
  - HPC Cluster ForHLR II
- External resources
  - GPU cluster at FZ Jülich
  - Resources provided by IBM
  - Public cloud providers

Preslav Konstantinov

Samuel Ambroj

Evening Program

- Tuesday Evening (~18:30)
  - Guided Computing Center Tour
  - Tarte Flambée Evening at SCC
  - We meet at FTU right after the tutorials (~18:10) and go together to SCC
  - **Do not forget your badge**

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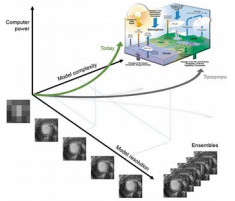
- Wednesday Evening (~18:30)
  - Evening Lecture by Dr. Peter Bauer

Karlsruhe Institute of Technology

SCC Steinbuch Centre for Computing

Why the future of weather and climate prediction will depend on supercomputing, big data handling and artificial intelligence

Dr. Peter Bauer
European Centre for Medium-Range Weather Forecasts



Wednesday 28 August 18:30

KIT Campus North – FTU Aula

Joint GridKa School and SCC-Colloquium

Abstract:
Weather and climate prediction are high-performance computing application with outstanding societal and economic impact ranging from the daily decision-making of citizens to that of civil services for emergency response, and from predicting weather drivers in food, agriculture and energy markets as well as for risk and loss management by insurances.
Forecasts are based on millions of observations made every day around the globe and physically based numerical models that represent processes acting on scales from hundreds of metres to thousands of kilometres in the atmosphere, the ocean, the land surface and the cryosphere. Forecast production and product dissemination to users is always time critical and forecast output data volumes already reach petabytes per week.
Meeting the future requirements for forecast reliability and timeliness needs 100-1000 times bigger high-performance computing and data management resources than today – towards what's generally called 'exascale'. To meet these needs, the weather and climate prediction community is undergoing one of its biggest revolutions since its foundation in the early 20th century.
This revolution encompasses a fundamental redesign of mathematical algorithms and numerical methods, the adaptation to new programming models, the implementation of dynamic and resilient workflows and the efficient post-processing and handling of big data. Due to these enormous computing and data challenges, artificial intelligence methods offer significant potential for gaining efficiency and for making optimal use of the generated information for European society.

About the speaker:
Dr Peter Bauer is the Deputy Director of the Research Department at ECMWF in the UK and heads the ECMWF Scalability Programme. He obtained his PhD degree in meteorology from the University in Hamburg, Germany. During his career, he was awarded post-doctoral and research fellowships working at NOAA and NASA in the US and IPSL in France. He is an international fellow of the German Helmholtz Society. He led a research team on satellite meteorology at DLR in Germany before joining ECMWF in 2000. He has been a member of advisory committees for national weather services, the World Meteorological Organization and European space agencies. He is coordinating the FET-HPC projects ESCAPE and ESCAPE-2, and the recent ExtremeEarth proposal for European Flagships.

KIT – The Research University in the Helmholtz Association

www.kit.edu

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- Thursday Evening (20:00)
  - School Dinner at Leonardo Hotel
  - 500m from central station

Lunch on Tuesday

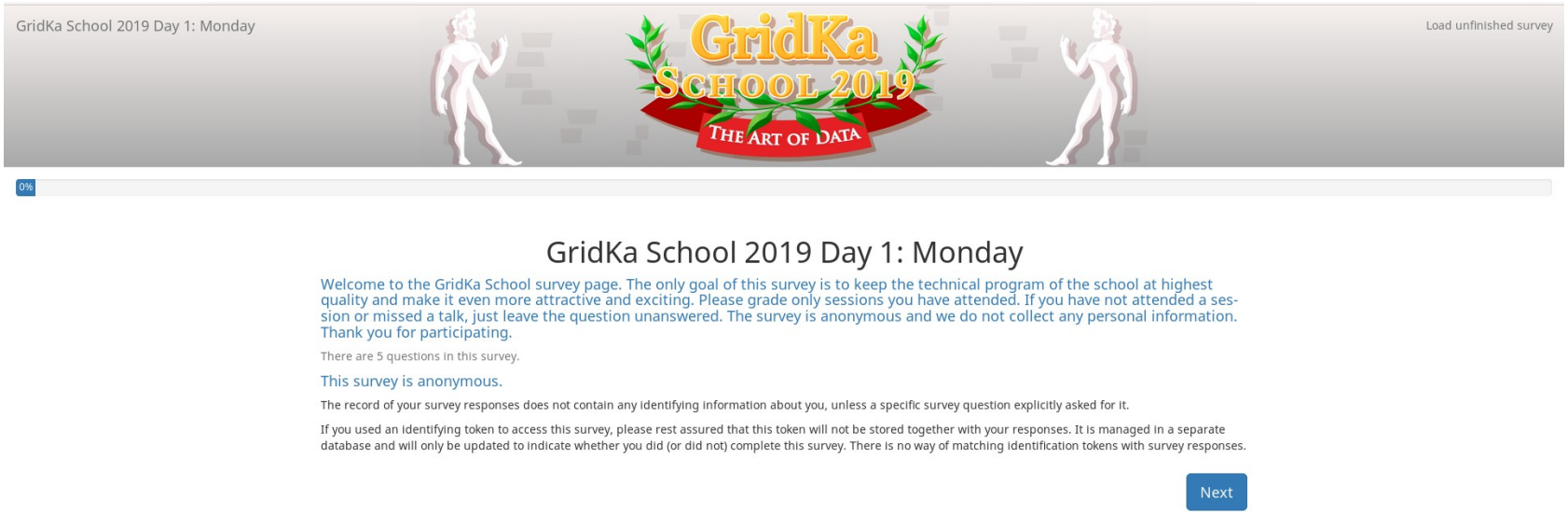
- Due to an incident the tap water is currently **not suitable for drinking**
- The on-site Casino is closed
- Lunch on Tuesday will be served at FTU
  - We will update you in case of changes

GridKa School Bus Shuttle

- Your connection between Leonardo Hotel and FTU
- Detailed schedule can be found at https://indico.scc.kit.edu/event/460/attachments/2724/4125/GKS19-Infosheet.pdf
- Today bus leaves around 18:00 in front of FTU
- Tomorrow bus leaves at 08:15 at Leonardo Hotel
- Transfer back at 22:00 in front of the SCC after Tarte Flambée Event

GridKa School Surveys

- We are very interested in your feedback – Please spend a few minutes to fill our surveys
- For each day, you will get a link to the survey by email
  - We will also present QR Codes with the link to the survey during breaks
- No registration needed, no logging, completely anonymous



Further Information

- Group Picture
  - Will be taken on Thursday in the extended coffee break (~10:40)
  - We will meet in front of the FTU
- Wireless
  - Guest account for KIT wifi (information in your welcome package)
  - Eduroam
  - Available in all rooms
- In case of questions
  - GridKa School Office in room 155
  - Send mail to GridKa-School@scc.kit.edu
  - Contact me or anyone from the GridKa School team

GridKa School Photographer

Christoph Heidecker

Sightseeing Karlsruhe

Still lots of construction sites

But also beautiful places

Sightseeing Karlsruhe

Lets get started

We wish you an interesting and pleasant GridKa School week!