BARC Celebration

of the renewal from BARC1 to BARC2 (see overleaf)

A collaboration between DIKU and ITU supported by VILLUM FONDEN
8th of May 2024

At the Department of Computer Science, University of Copenhagen
Universitetsparken 1, 2100 Copenhagen Ø, Auditorium UP1 (lille)

- **9:30-10:00 Coffee and croissants**
- **10:00-10:20 Scientific talk, Marcin Pilipczuk, U Warsaw (previous BARC visiting professor)**
- **10:25-10:45 Scientific talk, Ioana Bercea, KTH Stockholm (previous BARC postdoc)**
- **Coffee break**
- **11:00-11:20 Scientific talk, Jakub Tětek, KU (current BARC PhD student)**
- **11:25-11:45 Scientific talk, Kasper Green Larsen, AU (previous BARC visiting professor)**
- **Coffee break**
- **12:00-12:45 Lunch served at BARC**
- **12.45-12:55 *From algorithms theory to industry*, Stephen Alstrup, KU**
- **13:00-13:25 *Hashing algorithms*, *bridging from theory to practice*, Mikkel Thorup, KU**
- **13:30-13:55 *The limits of algorithms*, Nutan Limaye, ITU**
- **Coffee break with cake**
- **14:10-14:40 *Fast and simple sorting using partial information*, Turing Award Laureate Robert Tarjan**
- **Coffee break with fruit**
- **15:00-16:00 Official celebration**
  - **Mikkel Thorup, PI of BARC (15 min)**
  - **Jens Villum Kann-Rasmussen, Chairman of the Board of VILLUM Fonden (10 min)**
  - **Jakob Grue Simonsen, Head of Department, Comp. Sc., KU (10 min)**
  - **Per Bruun Brockhoff, Rector, ITU (15 min)**
  - **Jesper Wengel, Vice-Dean for Innovation and External Relations, Faculty of Science, KU (10 min)**
- **16:00-17:00 Reception at BARC**

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Basic Algorithms Research Copenhagen (BARC) is a leading centre for fundamental algorithmic research, headed by VILLUM Investigator Mikkel Thorup. We attract top talent from around the world to an ambitious, creative, collaborative, and fun environment. Using the power of mathematics we aim to create fundamental breakthroughs in algorithmic thinking, typically disseminated in top venues such as STOC, FOCS, and SODA. While the focus of BARC is algorithms theory, we do have a track record of surprising algorithmic discoveries leading to major industrial applications.

BARC is located at the Department of Computer Science, University of Copenhagen, and organised by a team of five core researchers: Mikkel Thorup, Stephen Alstrup and Rasmus Pagh from University of Copenhagen, and Thore Husfeldt and Nutan Limaye from IT University of Copenhagen. Nutan is new to the team, expanding our focus on complexity.

The BARC centre was first established in September 2017 with an Investigator Grant to Mikkel Thorup of over €5 million from VILLUM FONDEN and has now been awarded another €4 million by VILLUM FONDEN to continue our research till 2028. We are celebrating this renewal on May 8, 2024 (see overleaf).

By exploring high-impact areas with significant gaps in our understanding, we strive to make surprising discoveries that challenge the status quo. For instance, random hash functions are integral to data analysis, but there are significant gaps between theoretical understanding and practical implementation. Our mission is to bridge such divides and establish fundamental limits on algorithmic efficiency.

Villum Investigator Prof. Mikkel Thorup

About the speakers in the scientific programme

Marcin Pilipczuk, **Ioana Bercea**, **Jakub Tětek**, and **Kasper Green Larsen** are past and present affiliates of BARC1 who will give a taste of their recent work. **Stephen Alstrup** is professor of algorithms theory at KU but has also founded several companies and served in governmental advisory committees on information technology. **Mikkel Thorup** is head of BARC, ACM Fellow, AT&T Fellow, and recipient of numerous prizes including the Fulkerson Award. **Nutan Limaye** is associate professor at ITU and a new core member of the BARC leadership team. She specializes in complexity theory, trying to understand the limits of what algorithms can do, which is one of the new focuses of BARC2. Nutan recently received the ACM India award for outstanding women in computing. **Turing Award Laureate Robert Tarjan** is one of the founders of the field of efficient algorithms and received the Turing Award for his work on depth-first search. He will talk about some recent breakthrough results achieved in collaboration with BARC affiliates.

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