

# Siddhartha Kumar

Ph.D.



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## EDUCATION

### Ph.D., Informatics

University of Bergen | Norway  
Aug. 2015 – Aug. 2018

### MSc., Communication Engineering

Chalmers Univ. of Technology | Sweden  
Sept. 2013 – Jun. 2015

### BSc., Electronics and Communication Engineering

Amrita Vishwa Vidyapeetham | India  
Jul. 2009 – Jun. 2013

## SKILLS

Python

MATLAB

C/C++

Git

LaTeX

HTML

CSS

Technical writing

Oral presentation

Team work

## EXPERTISE

### Coding theory

**Machine learning:** regression, classification, neural networks, support vector machines, and dimensionality reduction

### Distributed information systems

### Linear algebra

### Combinatorial design

### Information theory

## WORK EXPERIENCE

### Postdoctoral Fellow

Simula UiB | Norway | Aug. 2018 – present

Under Prof. Alexandre Graell i Amat and Prof. Eirik Rosnes

- Constructed privacy-preserving and low-latency federated learning schemes
- Designed an efficient and private scheme to perform distributed computation at the edge of the wireless network
- Supervised two Ph.D. students
- Teaching assistant for MSc. level courses

### Ph.D. Student

University of Bergen | Norway | Aug. 2015 – Aug. 2018

Under Prof. Alexandre Graell i Amat and Prof. Eirik Rosnes

- Designed efficient secure distributed storage solutions and private information retrieval protocols for data centers
- Invited research visits at Technion – Israel Institute of Technology, Israel, and Università Politecnica delle Marche, Italy

## NOTABLE PROJECTS

Leading author of **13 (out of 16) publications** and accrued **194 citations** (source: Google Scholar)

### Privacy-preserving low-latency federated learning

- Designed low-latency federated learning schemes which preserve users' privacy
- 94% accuracy for the MNIST dataset with 2x faster convergence

### Private information retrieval protocols

- Designed and analyzed optimal low cost private information retrieval protocols for distributed storage systems
- First to present optimal protocols for arbitrary linearly coded data

## REFERENCES

### Alexandre Graell i Amat

Professor

Dept. of Electrical Engineering  
Chalmers University of Technology  
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### Eirik Rosnes

Chief Research Scientist

Information Theory  
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## INTERESTS



Fiction



Music



Photography