

# Dr. Jan Janak

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## Education

- **Ph.D., Computer Science**, Columbia University, New York, NY **Fall 2023**  
Thesis: Towards Self-Managing Networked Cyber-Physical Systems. Advisor: Prof. Henning Schulzrinne.
- **M.Phil., Computer Science**, Columbia University, New York, NY **Spring 2019**
- **M.Sc., Computer Science**, Czech Technical University, Prague, Czech Republic **Spring 2003**  
Thesis: SIP Proxy Server Effectiveness

## Research Interests

Internet services and protocols, cyber-physical systems (Internet of Things), programming abstractions for networked systems, software engineering, computer science education.

## Teaching

- **Adjunct Assistant Professor**, Dept. of Computer Science, Columbia University **Spring 2024–Summer 2024**  
COMS W3132 Intermediate Computing in Python, Enrollment: 26 Summer 2024  
COMS W3132 Intermediate Computing in Python, Enrollment: 60 Spring 2024
- **Teaching Fellow**, Dept. of Computer Science, Columbia University **Spring 2023**  
ENGI E1006 Introduction to Computing for Engineers and Applied Scientists, Enrollment: 180 Spring 2023
- **Graduate Teaching Assistant**, Dept of Computer Science, Columbia University **Fall 2017**  
COMS W4419 ITEP - Internet Technology, Economics, and Policy, Instructor: Henning Schulzrinne Fall 2017

## Awards

- **Davide Giri Memorial Prize**, The Fu Foundation School of Engineering and Applied Science, Columbia University **May 2023**  
The Davide Giri Memorial Prize is awarded annually to a graduate student in Computer Science who has combined excellence in research results with continued outstanding efforts to promote research collaboration.
- **PhD Service Award**, The Fu Foundation School of Engineering and Applied Science, Columbia University **May 2023**
- **Best Educational Paper Award**, The 2nd GENI Research and Educational Experiment Workshop, Salt Lake City **March 2013**  
Paper title: WiMAX in the Classroom: Designing a Cellular Networking Hands-on Lab

## Service

- **IoT 2024 TPC Member** **2024**  
<https://iot-conference.org/iot2024>
- **ACM SIGCOMM'23 Local Arrangements Chair** **2023**  
<https://conferences.sigcomm.org/sigcomm/2023>
- **IoT 2023 TPC Member** **2023**  
<https://iot-conference.org/iot2023>

## Talks, Demos, and Posters

- **Demo: Platform for Experimental Research in Critical Voice Communications** **June 2022**  
NIST PSCR 2022 Annual Stakeholder Meeting, San Diego, CA
- **Poster: Towards Cyber-Physical Systems Spanning Administrative and Geographical Boundaries** **June 2021**  
2021 NSF CPS Principal Investigators' Meeting
- **Poster: Towards Scalable, Reliable, and Resilient IoT Systems for Smart Cities** **November 2020**  
Smart Cities Center Poster Session, Columbia University Data Science Institute
- **SIP Express Router** **February 2006**  
FOSDEM, Brussels, Belgium

## Publications

- J. Janak, T. Tseng, A. Isaacs, H. Schulzrinne, *An Analysis of Amazon Echo's Network Behavior*, 2021 IEEE Global Communications Conference: IoT and Sensor Networks (Globecom2021 IoTSN), Madrid, Spain. December 2021.
- J. Janak, H. Retty, D. A. Chee, A. Baloian, H. Schulzrinne, *Talking After Lights Out: An Ad Hoc Network for Electric Grid Recovery*, 2021 IEEE International Conference on Communications, Control, and Computing Technologies for Smart Grids (Smart-GridComm) (IEEE SmartGridComm'21), Aachen, Germany. October 2021.
- J. De Oliveira Moreira, A. Pasarkar, W. Chen, W. Hu, J. Janak, H. Schulzrinne, *Social Distancing and the Internet: What Can Network Performance Measurements Tell Us?*, TPRC48: The 48th Research Conference on Communication, Information, and Internet Policy. February 2021
- P. Karhula, J. Janak, H. Schulzrinne, *Checkpointing and Migration of IoT Edge Functions*, Proceedings of the 2nd International Workshop on Edge Systems, Analytics and Networking. New York, NY, USA. 2019
- J. Janak, H. Schulzrinne, *Framework for Rapid Prototyping of Distributed IoT Applications Powered by WebRTC*, 2016 Principles, Systems and Applications of IP Telecommunications (IPTComm). Chicago, IL, USA. October 2016
- K. Kim, J. W. Lee, M. Ben-Ami, H. Nam, J. Janak, H. Schulzrinne, *Flexible Network Address Mapping for Container-based Clouds*, Proceedings of the 2015 1st IEEE Conference on Network Softwarization (NetSoft). April 2015
- Marasevic, J., Janak, J., Schulzrinne, H., Zussman, G., *WiMAX in the classroom: Designing a cellular networking hands-on lab* (Best Educational Paper Award), 2013 Second GENI Research and Educational Experiment Workshop, (2013).
- J. W. Lee, R. Francescangeli, W. Song, J. Janak, E. Maccherani, S. R. Srinivasan, M. Kester, S. Baset, H. Schulzrinne, *NetServ: Reviving Active Networks*, Technical report CUCS-001-12. Department of Computer Science, Columbia University. 2012
- J. Janak, J. W. Lee, H. Schulzrinne, *GRAND: Git Revisions As Named Data*, Technical report CUCS-047-11. Department of Computer Science, Columbia University. 2011
- J. W. Lee, R. Francescangeli, W. Song, J. Janak, S. Srinivasan, M. S. Kester, S. A. Baset, E. Liu, H. Schulzrinne, V. Hilt, Z. Despotovic, W. Kellerer, *NetServ Framework Design and Implementation 1.0*, Technical report CUCS-016-11. Department of Computer Science, Columbia University. 2011
- S. Seo, J. Janak, H. Schulzrinne, *Columbia University WiMAX Campus Deployment and Installation*, Technical report CUCS-032-11. Department of Computer Science, Columbia University. 2011
- S. A. Baset, J. Reich, J. Janak, P. Kasperek, V. Misra, D. Rubenstein, H. Schulzrinne, *How Green is IP-Telephony?*, Proceedings of the First ACM SIGCOMM Workshop on Green Networking. 2010
- M. Brandl, K. Franzens, D. Daskopoulos, E. Dobbelsteijn, R. G. Garroppo, J. Janak, J. Kuthan, S. Niccolini, J. Ott, S. Prella, S. Ubik, E. Verharen, *IP Telephony Cookbook*, Technical report. TERENA. March 2004
- A. Pelinescu-Oniciul, J. Janak, J. Kuthan, *SIP Express Router (SER)*, IEEE Network. IEEE. July 2003
- Y. Rebahi, D. Sisalem, J. Kuthan, A. Pelinescu-Oniciul, B. Iancu, J. Janak, D. Mierla, *The SIP Express Router-An Open Source SIP Platform*, Evolute Workshop. Guildford, UK. 2003

## Professional Experience

- **Senior Research Scientist** **May 2023–August 2024**  
*MediaTek USA Inc., Warren, NJ*  
Design and prototyping of abstractions for distributed 6G network applications.
- **Graduate Research Assistant** **September 2015–December 2022**  
*Internet Real-Time Lab, Dept. of Computer Science, Columbia University, New York, NY*  
Research related to cyber-physical systems, and mission-critical voice. Performed system design and prototyping; designed and evaluated network protocols, services, and APIs; supervised students.
- **Associate Research Assistant** **June 2011–August 2015**  
*Internet Real-Time Lab, Dept. of Computer Science, Columbia University, New York, NY*  
Research related to the Internet of Things (IoT). Performed system design and prototyping; designed and evaluated network protocols, services, and APIs; supervised students.
- **Visiting Research (on sabbatical)** **January 2010–June 2011**  
*Internet Real-Time Lab, Dept. of Computer Science, Columbia University, New York, NY*  
Evaluated energy efficiency of VoIP systems, designed software for deploying services into core Internet routers (NetServ), conducted high-performance SIP signaling research.
- **Senior Software Architect** **June 2005–August 2011**  
*Tekelec, Prague, Czech Republic*  
Joined through the acquisition of Iptelorg. Worked on the company's carrier-grade SIP signaling products.
- **Co-Founder and Chief Software Architect** **January 2005–June 2005**  
*Iptelorg GmbH, Berlin, Germany*  
Oversaw the design and implementation of the company's software for large-scale VoIP deployments. Acquired by Tekelec in 2005.
- **Research Software Developer** **September 2003–December 2004**  
*Fraunhofer FOKUS, Berlin, Germany*  
Worked on a high-performance SIP server implementation written in C. Designed a fast protocol parser, a database access layer, an authentication abstraction API, wrote documentation.
- **Student Intern** **December 2001–December 2002**  
*Fraunhofer FOKUS, Berlin, Germany*  
Developed software to control NAT and firewall iptables rules from VoIP applications in real-time.