

Animesh Srivastava

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Education

Duke University

Ph.D., Department of Computer Science

Durham, USA

Aug. 2012 - Oct. 2017

- Adviser: Dr. Landon Cox
- Thesis: *Practical Fine-grained Access Control for Mobile Camera*

Indian Institute of Technology Kharagpur

M.S., Department of Computer Science & Engineering

West Bengal, India

Jan. 2010 - July 2012

- CGPA: 9.51/10
- Thesis: *Impact of Attacks on Correlated P2P Network Topology: A Complex Network Approach*

Haldia Institute of Technology

B.Tech., Department of Computer Science & Engineering

West Bengal, India

Aug. 2003 - July 2007

- Department Rank #1 (CGPA: 8.81/10)
- Senior Thesis Topic: *FEcST: A Hybrid Routing Algorithm for MANET*

Work Experience

Google

Software Engineer

Mountain View, CA, USA

Dec. 2018 - To Present

Caspar.AI

Sr. Software Engineer

Redwood City, CA, USA

Oct. 2018 - Dec. 2018

Caspar.AI

Software Engineer

Redwood City, CA, USA

Dec. 2017 - Oct. 2018

HP Labs

Research Intern

Palo Alto, CA, USA

May 2016 - Dec. 2016

- **Mentor:** Puneet Jain
- **Project:** CamForensics

HP Labs

Research Intern

Palo Alto, CA, USA

May 2014 - Dec. 2014

- **Mentor:** Jeremy Gummeson and Mary Baker
- **Project:** Collocate

Wipro Technologies

Project Engineer

Bangalore, India

June 2007 - July 2009

- **Project:** Implemented WIA2.0 scanner drivers for Windows Vista

Patents and Disclosures

1. Detecting camera access breaches (**US 15/675568**)
A. Srivastava, P. Jain and K. Kim
2. Controlling devices based on collocation of the devices on a user (**PCT/US2014/065847**)
J. Gummeson, M. G. Baker, A. Srivastava and S. Mare
3. User authentication device (**PCT/US2015/016958**)
J. Gummeson, M. G. Baker and A. Srivastava
4. Indoor Object Positioning System using Smartphones (Duke Internal Review)
R. R. Choudhury and A. Srivastava

Academic Services

2019	Reviewer , 15th International Wireless Communications & Mobile Computing Conference	Morocco
2019	Reviewer , IEEE International Conference on Sensing, Communication and Networking	Boston, USA
2018	Shadow Program Committee , ACM Internet Measurement Conference	Boston, USA
2018	Technical Program Committee , 1st ACM International Workshop on Future Industrial Communication Networks	India
2018	Reviewer , IEEE International Conference on Sensing, Communication and Networking	Hong Kong
2018	Student Program Committee , 39th IEEE Symposium on Security and Privacy	San Francisco, USA
2017	Reviewer , Transactions on Mobile Computing (Journal)	
2017	Reviewer , IEEE International Conference on Sensing, Communication and Networking	San Diego, USA
2015	Reviewer , The Ninth International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies	Nice, France
2015	Reviewer , Transactions on Mobile Computing (Journal)	
2014	Reviewer , The Eighth International Conference on Mobile Ubiquitous Computing, Systems, Services and Technologies	Rome, Italy

Selected Conference Publication

SenSys 2017	"CamForensics: Understanding Visual Privacy Leaks in the Wild", A. Srivastava, P. Jain, D. Soteris, L. Cox, K. Kim
SEC 2017	"ePrivateEye: To the Edge and Beyond!", C. Streiff, A. Srivastava, V. Orlikowski, Y. Velasco, V. Martin, N. Raval, A. Machhanavajjhala, L. Cox
Mobisys 2016	"What You Mark is What Apps See", N. Raval, A. Srivastava, A. Razeen, K. Lebeck, A. Machanavajjhala, L. Cox
HotMobile 2015	"Step-by-step Detection of Personally Collocated Mobile Devices", A. Srivastava, J. Gummesson, M. Baker, K. Kim
UPSIDE 2014	"Markit: privacy markers for protecting visual secrets", N. Raval, A. Srivastava, K. Lebeck, L. Cox, A. Machanavajjhala
Ubicomp 2013	"If you see something, swipe towards it: crowdsourced event localization using smartphones", R. Ouyang, A. Srivastava, P. Prabakar, R. R. Choudhury, M. Addicott, F. McClernon
SASO 2012	"Can Degree Correlation Help to Design Resilient Superpeer Networks?", A. Srivastava, B. Mitra, F. Peruani, N. Ganguly
SCNC 2011	"Attacks on Correlated Peer-to-Peer Networks: An Analytical Study", A. Srivastava, B. Mitra, F. Peruani, N. Ganguly

Selected Talks

Apple Inc.	California, USA
Speaker	Oct. 2018
• Practical-fine grained access control for mobile camera	
The 15th ACM Conference on Embedded Networked Sensor Systems	Delft, The Netherlands
Speaker	Nov. 2017
• CamForensics: Understanding Visual Privacy Leaks in the Wild	
Hewlett Packard Labs	California, USA
Speaker	Aug. 2016
• Visual Privacy in the Wild	
The 14th ACM International Conference on Mobile Systems	Singapore
Speaker	Jul. 2016
• What Your Mark is What Apps See	
Hewlett Packard Labs	California, USA
Speaker	Aug. 2014
• Step-by-step Detection of Personally Collocated Mobile Devices	

Honors & Awards

Travel Awards: Sigcomm10, MobiSys14, OSDI14, SOSP15, MobiSys16

Feather In My Cap, Delivering at consecutive critical deadlines, **Wipro Technologies**

Distinction, National Mathematics Olympiad Contest, All India Schools Mathematics Teachers Association 2002

Finalist, National Level Science Talent Search Examination, 2001

Projects

Hive

Caspar.AI

A scalable distributed system for real-time neural network based detection

May 2017 - To Present

- Designed a container based solution to distribute computation for scalable SmartHome system.
- Configured and deployed a tensorflow serving to efficiently use GPU resources.
- Exported existing neural network graphs to tensorflow serving format.
- **Keywords:** Edge computing, Docker, Object detection, Tensorflow-serving.

ePrivateEye

Duke University

Realtime detection of sensitive regions in camera view using edge computing

March 2017 - April 2017

- Modified Android OS module, camera service, to intercept the image data, block sensitive regions and deliver to apps.
- Offloaded heavy computer vision algorithm to edge servers for realtime frames per second delivery.
- Deployed the system over home network, business network and Amazon cloud infrastructure.
- **Keywords:** Visual privacy, Android camera service, Edge computing.

CamForensics

HP Labs, Duke University

Understanding visual privacy leaks from Android apps

May 2016 - April 2017

- Developed a system to detect known sensitive image processing by a native library of an app during runtime.
- Used Intel's Pin tool to instrument an Android process dynamically to collect the sequence of function invocations.
- Used convolutional neural network (CNN) to map a sequence of function invocation to a image processing task.
- Conducted comprehensive user study to demonstrate the disconnect between app description and user's expectation.
- **Keywords:** Visual privacy, Dynamic binary instrumentation, Neural network, User study.

PrivateEye

Duke University

On-device (Android) detection of sensitive regions in camera view

Jan. 2014 - Feb. 2016

- Designed *privacy marker* to mark two-dimensional regions, and instrumented Android camera service to intercept camera frame data, recognize *privacy marker* and apply privacy policies before delivering the camera data to an app.
- Implemented a pipeline framework to speedup the detection of *privacy marker* and deliver frames at a median rate of **20 FPS**.
- **Keywords:** Visual privacy, Computer vision, Android camera service.

Collocate

HP Labs

Realtime detection of personally collocated smartdevices

May 2014 - Dec. 2014

- Designed and implemented a lightweight Bluetooth Low Energy (BLE) based protocol for a smartwatch and smartphone to determine if they are collocated with the same user.
- Implemented step detection algorithm and optimized BLE traffic to keep the smartwatch and the smartphone in sync.
- **Keywords:** Bluetooth low energy, Step detection.

SwingAR

Duke University

Computer vision and geometry based indoor localization

Aug. 2012 - April 2013

- Implemented an Augmented Reality (AR) app to overlay textual information on physical world in an indoor setting.
- Implemented dead-reckoning technique to handle the noise in various sensors.
- Used computer vision algorithm to localize the user and correct errors introduced due to the noise in sensors.
- **Keywords:** Augmented reality, Dead reckoning, Computer vision.

References

1. **Dr. Landon Cox** , Senior Researcher, Mobility and Networking Research, Microsoft Research
Email: lpcox@cs.duke.edu
2. **Dr. Chuck Wu** , VP, Google
Email: cwu@google.com
3. **Dr. Ashwin Machanavajjhala** , Assistant Professor, Department of Computer Science, Duke University
Email: ashwin@cs.duke.edu
4. **Dr. Bruce Maggs** , Pelham Wilder Professor of Computer Science, Duke University
Email: bmm@cs.duke.edu
5. **Dr. Puneet Jain** , Software Engineer, Google
Email: csepuneet@gmail.com
6. **Dr. Kyu-Han Kim** , Principal Researcher and Director, Hewlett Packard Enterprise
Email: kyuhan.kim@gmail.com