Animesh Srivastava

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Education

Duke University — *Durham, USA*
Ph.D., Department of Computer Science — *Aug. 2012 - Oct. 2017*
- Adviser: Dr. Landon Cox
- Thesis: *Practical Fine-grained Access Control for Mobile Camera*

Indian Institute of Technology Kharagpur — *West Bengal, India*
M.S., Department of Computer Science & Engineering — *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 — *West Bengal, India*
B.Tech., Department of Computer Science & Engineering — *Aug. 2003 - July 2007*
- Department Rank #1 (CGPA: $8.81/10$)
- Senior Thesis Topic: *FEcST: A Hybrid Routing Algorithm for MANET*

Work Experience

Google — *Mountain View, CA, USA*
Software Engineer — *Dec. 2018 - To Present*

Caspar.AI — *Redwood City, CA, USA*
Sr. Software Engineer — *Oct. 2018 - Dec. 2018*

Caspar.AI — *Redwood City, CA, USA*
Software Engineer — *Dec. 2017 - Oct. 2018*

HP Labs — *Palo Alto, CA, USA*
Research Intern — *May 2016 - Dec. 2016*
- **Mentor:** Puneet Jain
- **Project:** CamForensics

HP Labs — *Palo Alto, CA, USA*
Research Intern — *May 2014 - Dec. 2014*
- **Mentor:** Jeremy Gummeson and Mary Baker
- **Project:** Collocate

Wipro Technologies — *Bangalore, India*
Project Engineer — *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. Gummeson, 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. Prabahar, 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, Deptartment 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