

# Viet Nguyen

671 Route 1 South, North Brunswick, NJ 08902, USA  
viet.nguyen@rutgers.edu • +1 (848) 565-5741 • <http://www.winlab.rutgers.edu/~vietnh>

## OBJECTIVE

PhD researcher with extensive experience in mobile computing and networking, computer vision and perception, and multi-modal sensing, seeking a full-time position in research or advanced development.

## EDUCATION

**Rutgers University**, North Brunswick, New Jersey, USA

- Ph.D. in Computer Engineering Sep 2013 – present
  - Adviser: Prof. Marco Gruteser
  - Focus: Mobile Vision, Visible Light Communication and Sensing, Capacitive Touch Communication.

**Ritsumeikan University**, Shiga, Japan

- B.S. in Information Science and Technology Apr 2009 – Mar 2011

**Hanoi University of Technology**, Hanoi, Vietnam

- Computer Science. *Transferred to Ritsumeikan University* Sep 2006 – Mar 2009

## RESEARCH EXPERIENCE

**WINLAB/Rutgers University**, North Brunswick, New Jersey, USA

- **Body-guided Communications.**
  - Develop a channel model for Body-guided Communications, a technique for securely authenticating/identifying users with devices on every single touch.
  - Design and implement hardware prototypes of wearable rings and wristbands for per-touch authentication on touched devices.
- **Wi-Fi Fine Time Measurements.**
  - Build experimental testbed for evaluating the ranging and localization accuracy of new Wi-Fi cards with Fine Time Measurements capability.
- **Visible Light Indoor Localization using Ceiling Photosensors.**
  - Develop a localization system in which photosensors deployed on the ceiling detect the change in light level caused by human shadow.
  - Build light sensor frontend, signal processing embedded system and backend server.
- **Mobility-Aware Virtual Views for Steerable Cameras.**
  - Develop a camera recording system for PTZ IP cameras, using OpenCV and libvlc.
  - Develop several computer vision algorithms using OpenCV, including background subtraction, vehicle and pedestrian counting, and license plate recognition (using OpenALPR).
- **Flicker-Free Screen-Camera Communication.**
  - Propose spatial content-adaptive encoding for screen-camera communication to achieve both high capacity and minimal flicker.
  - Develop content-adaptive encoding techniques that exploit visual features such as edges and texture to unobtrusively communicate information.
- **Privacy Respecting Cameras.**
  - Explore the use of near-visible/infrared light communication to design “invisible light beacons” where privacy preferences of photographed users are communicated to cameras.
  - Experiment with a design where the beacon transmitters are worn by users on their glasses and transmit privacy codes through ON-OFF patterns of light beams from IR LEDs.

## INDUSTRY EXPERIENCE

**Samsung Research America**, Richardson, TX

- Research Intern Aug 2018 – Dec 2018
  - **Robotic platform for Object Detection/Recognition:** Build up a robotic platform with different sensor modalities (LIDAR, camera, RF) for small object detection/recognition purpose. Apply deep learning based methods for semantic segmentation task on the robotic platform.

**Samsung Research America**, Richardson, TX

- Research Intern Jul 2016 – Sep 2016
  - **Video Analysis for Smart Building Control:** Implement video analysis algorithms to estimate human occupancy and detect their activities from indoor camera feeds.

**Viettel R&D Institute**, Hanoi, Vietnam

- Software Engineer Jul 2011 – May 2013

- **Antenna Coverage Simulation software:** Design a C++ core library to calculate antenna coverage over a specific area from terrain height information of digital maps. Develop a 3D display module to visualize antenna coverage area on a digital map, using ArcGIS simulation engine and Microsoft Visual C#.
- **Analog to Digital Converter for Radars:** Develop firmware for ARM microcontrollers to communicate with and control other components, which handle different types of input signals from radar systems.

## PUBLICATIONS      CONFERENCES

- [MOBICOM-18] Viet Nguyen, Mohamed Ibrahim, Hoang Truong, Phuc Nguyen, Marco Gruteser, Richard Howard, Tam Vu, “Body-Guided Communications: A Low-power, Highly-Confined Primitive to Track and Secure Every Touch,” in *Proceeding of the International Conference on Mobile Computing and Networking (MobiCom) 2018*, New Delhi, India, 2018.
- [MOBICOM-18] Mohamed Ibrahim, Hansi Liu, Minitha Jawahar, Viet Nguyen, Marco Gruteser, Richard Howard, Bo Yu, Fan Bai, “Verification: Accuracy Evaluation of WiFi Fine Time Measurements on an Open Platform,” in *Proceeding of the International Conference on Mobile Computing and Networking (MobiCom) 2018*, New Delhi, India, 2018.
- [INFOCOM-18] Viet Nguyen, Mohamed Ibrahim, Siddharth Rupavatharam, Minitha Jawahar, Marco Gruteser, Richard Howard, “EyeLight: Light-and-shadow-based Occupancy Estimation and Room Activity Recognition,” in *Proceeding of IEEE Conference on Computer Communications (INFOCOM) 2018*, Honolulu, Hawaii, Apr. 2018.
- [IPSN-17] Shubham Jain, Viet Nguyen, Marco Gruteser, Paramvir Bahl, “Panoptes: Servicing Multiple Applications Simultaneously using Steerable Cameras,” in *ACM/IEEE IPSN 2017: The 16th International Conference on Information Processing in Sensor Networks*, Pittsburgh, Pennsylvania.
- [INFOCOM-16] Viet Nguyen , Yaqin Tang, Ashwin Ashok, Marco Gruteser, Kristin Dana, Wenjun Hu, Eric Wengrowski, Narayan Mandayam, “High-Rate Flicker-Free Screen-Camera Communication with Spatially Adaptive Embedding ,” in *Proceeding of IEEE Conference on Computer Communications (INFOCOM) 2016*, San Francisco, CA. **Best-in-session Presentation Award.**

## WORKSHOPS

- [S3-17] Hoang Truong, Phuc Nguyen, Viet Nguyen, Mohamed Ibrahim, Richard Howard, Marco Gruteser and Tam Vu, “Through-body Capacitive Touch Communication,” in *ACM MobiCom 2017 - S3 Workshop - The ACM International Conference on Mobile Computing and Networking*, Oct. 2017.
- [VLCS-16] Mohamed Ibrahim, Viet Nguyen (co-first author), Siddharth Rupavatharam, Minitha Jawahar, Marco Gruteser, Richard Howard, “Visible Light based Activity Sensing using Ceiling Photosensors ,” in *3rd ACM Workshop on Visible Light Communication Systems (VLCS) 2016*, New York City, NY. **Best Paper Award.**
- [VLCS-14] Ashwin Ashok, Viet Nguyen , Marco Gruteser, Narayan Mandayam, Wenjia Yuan, Kristin Dana, “Do not share! Invisible Light Beacons for Signaling Preferences to Privacy-Respecting Cameras ,” in *Proceeding of ACM Workshop, VLCS Workshop, 2014*, Maui, Hawaii.
- [MC2R-14] Viet Nguyen , Marco Gruteser, “First Experiences with Google Glass in Mobile Research ,” in *Get Mobile - Mobile Computing Communications Review* , October 2014.

**COURSEWORK**      Stochastic Signals and Systems, Communication Network I, Communication Network II, Design and Analysis of Data Structures and Algorithms, System Analysis, Computer Vision, Introduction to Artificial Intelligence, Topics in Mobile Computing, Convex Optimization, Operating Systems Design, Numerical Analysis.

**AWARDS & HONOR**

- Best Paper Award - ACM VLCS Workshop 2016      2016
- Best-in-Session Presentation Award - IEEE INFOCOM 2016      2016
- Student Travel Grant - IEEE INFOCOM 2016      2016
- Rutgers TA/GA Professional Development Fund      2016, 2017, 2018

**SERVICES**

- ACM SIGMOBILE Video Director, 2017-2018.
- Reviewer: MobiSys (2013-2018), MobiCom (2014-2017), IEEE Transaction on Mobile Computing.

**TECHNICAL SKILLS**

- **Programming languages:** C, C++, Java, Python, MATLAB.

- **Embedded Systems and Electronics:** Experience with microcontroller programming: ARM, AVR, MSP430, MSP432. Familiar with electronics prototyping, testing equipments (oscilloscope, function generator, power supply, etc.) and PCB design programs (Eagle, KiCad).
- **Sensors:** Experience with several sensing modalities, including visible light, vision-based (RGB or depth cameras), LIDAR, capacitive sensing, magnetic sensing.
- **Machine Learning and Computer Vision:** OpenCV, Matlab Computer Vision Toolbox, TensorFlow, Keras.
- **Robotics:** ROS programming on Turtlebot platforms. Familiar with basic robotics techniques: SLAM (visual-based and laser-based), autonomous navigation.
- **Others:** Ubuntu Linux, Cygwin, Bash scripting, Emacs, Visual Studio, Code Composer Studio, Atollic TRUEStudio.