

Nipun Batra

POSTDOC. RESEARCHER

Department of Computer Science, University of Virginia

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Education

IIIT Delhi

PH.D., COMPUTER SCIENCE (GPA 9.3/10)

Delhi, India

Jan 2012-Mar 2017

Delhi College of Engineering

BACHELORS OF ENGINEERING (HONS.), COMPUTER SCIENCE (GPA 9/10)

Delhi, India

Jul 2007-April 2011

Honours & Awards

2017	AAAI travel grant , AAAI 2017	San Francisco, USA
2016	Best video nominee , KDD 2016, Acceptance rate: 3.1%	San Francisco, USA
2016	Finalist in UChicago Delhi urban challenge , Acceptance rate: 3.6%	Delhi, India
2016	3rd position in IoT hackathon , Microsoft Research Summer School	Bangalore, India
2016	Google, Microsoft Research and KDD travel grant , KDD 2016	San Francisco, USA
2015	Best presentation award , Sensys 2015 Doctoral Colloquium	Seoul, South Korea
2015	ACM travel grant , Sensys 2015	Seoul, South Korea
2014	Best demo award , Buildsys 2014	Memphis, USA
2014	ACM travel grant , E-Energy 2014	Cambridge, UK
2012	PhD fellowship , TCS Research and Development	
2012	Travel and lodging grant , Microsoft Research Summer School	Bangalore, India
2010	Systems engineering prize barrel , AUVSI's student UAS competition	Maryland, USA
2009	Young scientist travel grant , Department of Science and Technology (Govt. of India)	Delhi, India
2009	Director's award for best effort , AUVSI's student UAS competition	Maryland, USA

Research Experience

University of Virginia

POSTDOC. RESEARCHER

Charlottesville, USA

Mar. 2017 - Present

IIIT Delhi

GRADUATE RESEARCH ASSISTANT

Delhi, India

Jan. 2012 - Present

University of Virginia (under Prof. Kamin Whitehouse)

VISITING RESEARCHER

Charlottesville, Virginia, USA

Jul. 2014 - Apr. 2015

Linux Android Network Systems Lab, Delhi College of Engineering

UNDERGRADUATE RESEARCH INTERN

Delhi, India

Dec. 2010 - Jun. 2011

Unmanned Aircraft Systems Lab, Delhi College of Engineering

UNDERGRADUATE RESEARCH INTERN

Delhi, India

Dec. 2008 - Jul. 2010

Teaching Experience

Computer Networks (under Prof. Dheeraj Sanghi)

HEAD TA

IIIT Delhi, India

Winter 2016

IIITD media team (under Prof. Dheeraj Sanghi)

RESEARCH MEDIA MANAGER

IIIT Delhi, India

Monsoon 2015

Embedded Systems (under Dr. Amarjeet Singh)

TA

IIIT Delhi, India

Winter 2013

Introduction to Programming (under Dr. Gaurav Gupta)

HEAD TA

IIIT Delhi, India

Monsoon 2012

Industrial Experience

Royal Bank of Scotland

SOFTWARE ANALYST

Goldman Sachs

ENGINEERING INTERN

Gurgaon, India

Jun. 2011 - Nov. 2011

Bangalore, India

Jun. 2010 - Aug. 2010

Invited Talks

2016 **Stanford University**, Towards energy disaggregation for a 100 million homes

California, USA

2015 **University of Pennsylvania**, If you can measure it, can you improve it?

Philadelphia, USA

2015 **Carnegie Mellon University**, If you can measure it, can you improve it?

Pittsburgh, USA

Professional Service

2018 **TPC chair**, 4th International NILM workshop

Austin, Texas, USA

2016 **Steering committee**, 3rd International NILM workshop

Canada

2014 **Program committee**, 2nd International NILM workshop

Austin, Texas, USA

2012-16 **External reviewer**, Transactions on Mobile Computing, Buildsys 2015, Ubicomp 2015, E-Energy 2015, E-Energy 2014, ASONAM 2013, E-Energy 2013, ICDM 2013, Buildsys 2013

Publications(Click [here](#) for Google Scholar Profile)

SELECTED PEER-REVIEWED PAPERS

- 2018 [S.7] **Transferring Decomposed Tensors for Scalable Energy Breakdown across Regions**
Nipun Batra, Yiling Jia, Hongning Wang, Kamin Whitehouse
AAAI 2018. New Orleans, USA (**Acceptance rate: 25%**).
- 2017 [S.6] **Matrix Factorisation for Scalable Energy Breakdown**
Nipun Batra, Hongning Wang, Amarjeet Singh, Kamin Whitehouse
AAAI 2017. San Francisco, USA (**Acceptance rate: 25%**).
- 2016 [S.5] **Gemello: Creating a Detailed Energy Breakdown from just the Monthly Electricity Bill**
Nipun Batra, Amarjeet Singh, Kamin Whitehouse
KDD 2016. San Francisco, USA (**Acceptance rate: 19%**).
- 2015 [S.4] **If You Measure It, Can You Improve It? Exploring The Value of Energy Disaggregation**
Nipun Batra, Amarjeet Singh, Kamin Whitehouse
Buildsys 2015. Seoul, Korea (**Acceptance rate: 29%**).
- 2014 [S.3] **NILMTK: An Open Source Toolkit for Non-intrusive Load Monitoring**
Nipun Batra, Jack Kelly, Oliver Parson, Haimonti Dutta, William Knottenbelt, Alex Rogers, Amarjeet Singh, and Mani Srivastava
ACM eEnergy 2014. Cambridge, UK (**Acceptance rate: 20%, 140+ citations**)
- 2013 [S.2] **It's Different: Insights into home energy consumption in India**
Nipun Batra, Manoj Gulati, Amarjeet Singh, and Mani Srivastava
Buildsys 2013, Rome, Italy (**60+ citations**)
- 2012 [S.1] **SensorAct: A Privacy and Security Aware Federated Middleware for Building Management**
Pandarasamy Arjunan, **Nipun Batra**, Haksoo Choi, Amarjeet Singh, Pushpendra Singh, and Mani B. Srivastava
Buildsys 2012, Waterloo, Canada

OTHER PEER-REVIEWED PAPERS

- 2015 [0.3] **Dataport and NILMTK: A Building Data Set Designed for Non-intrusive Load Monitoring**
Oliver Parson, Grant Fisher, April Hersey, **Nipun Batra**, Jack Kelly, Amarjeet Singh, William Knottenbelt, Alex Rogers
GlobalSip, Orlando, FL, USA

- 2013 [0.2] **INDiC: Improved Non-Intrusive load monitoring using load Division and Calibration**
Nipun Batra, Haimonti Dutta and Amarjeet Singh
ICMLA 2013, Miami, USA
- 2013 [0.1] **Experiences with Occupancy Based Building Management Systems**
Nipun Batra, Pandarasamy Arjunan, Amarjeet Singh and Pushpendra Singh
ISSNIP 2013, Melbourne, Australia

POSTERS, DEMOS, AND SHORT PAPERS

- 2015 [P.3] **Non Intrusive Load Monitoring: Systems, Metrics and Use Cases**
Nipun Batra
Sensys 2015 (**Best presentation award**)
- 2014 [P.2] **NILMTK v0. 2: A Non-intrusive Load Monitoring Toolkit for Large Scale Data Sets**
Jack Kelly, Nipun Batra, Oliver Parson, Haimonti Dutta, William Knottenbelt, Alex Rogers, Amarjeet Singh, and Mani Srivastava
Buildsys 2014 (**Best demo award**)
- 2014 [P.1] **Bits and watts: improving energy disaggregation performance using power line communication modems**
Nipun Batra, Manoj Gulati, Puneet Jain, Kamin Whitehouse and Amarjeet Singh
Buildsys 2014

TECHNICAL REPORTS

- 2015 [T.4] **How good is good enough? Re-evaluating the bar for energy disaggregation**
Nipun Batra, Rishi Baijal, Amarjeet Singh, Kamin Whitehouse
- 2015 [T.3] **Neighbourhood NILM: A Big-data Approach to Household Energy Disaggregation**
Nipun Batra, Amarjeet Singh, Kamin Whitehouse
- 2014 [T.2] **A comparison of non-intrusive load monitoring methods for commercial and residential buildings**
Nipun Batra, Oliver Parson, Mario Berges, Amarjeet Singh, Alex Rogers
- 2014 [T.1] **Data Driven Energy Efficiency in Buildings**
Nipun Batra, Amarjeet Singh, Pushpendra Singh, Haimonti Dutta, Venkatesh Sarangan, and Mani Srivastava

Mentoring and students

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| 2017 | Anmol Singh , Factorisation for scalable energy breakdown | <i>Independent project</i> |
| 2015 | Rishi Baijal , Non-intrusive occupancy detection | <i>Bachelor's thesis</i> |
| 2013 | Ishaan Malhotra , Smart meter based energy disaggregation | <i>Bachelor's thesis</i> |
| 2013 | Akshit Gupta , Appliance energy modelling | <i>Independent project</i> |
| 2013 | Ayushi Aggarwal , Reproducible energy disaggregation | <i>Independent project</i> |