

DR. ABHINAV KUMAR SINGH

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Education

- **PhD** in Electrical Engineering from Imperial College London, United Kingdom, awarded on 01/01/2015; Thesis: “*Decentralized Estimation and Control for Power Systems*”; Supervisor: Prof. Bikash C. Pal; Examiners: Prof. C. Göran Andersson and Prof. Alessandro Astolfi
- **BTech** (Bachelor of Technology) in Electrical Engineering (Power) from Indian Institute of Technology Delhi, India, 2010; Thesis: “*Analysis of the Stability of a Grid Connected Wind Energy Conversion System (WECS)*”

Employment

- *Lecturer of Power Systems*: Apr. 2019- present, Electrical Power Engineering Group, University of Southampton; Aug. 2017-Mar. 2019, School of Engineering, University of Lincoln.
- *Visiting Researcher*: Sep. 2017-present; *Research Associate*: Jan. 2015-Jul. 2017; *Research Assistant*: Sept. 2014-Dec. 2014, Electrical & Electronic Engineering Dept., Imperial College London; Project: Advanced Communication and Control for the Prevention of Blackouts (ACCEPT); Sponsor: EPSRC, UK.
- *Research Assistant*: Oct. 2010-Aug. 2011, Department of Electrical Engineering, Indian Institute of Technology Delhi; Project: Stability of a Grid Connected Wind Energy Conversion System; Sponsor: DST, India.

Honours and awards

- *IEEE PES Working Group Recognition Award for Benchmark Systems for Stability Controls Task Force*, 2016.
- *The President’s Award for Outstanding Research Team*, Imperial College London, UK, 2016.
- *EPSRC Doctoral Prize*, Imperial College London, UK, 2015.
- *Summer Undergraduate Research Award*, Indian Institute of Technology Delhi, India, 2008.

Publications

According to Google scholar, total citations: 554, h-index: 9, i10-index: 7

Journals

1. A.K. Singh; B.C. Pal, “Rate of Change of Frequency Estimation for Power Systems using Interpolated DFT and Kalman Filter,” *IEEE Transactions on Power Systems*, vol. 34, no. 4, pp. 2509-2517, July 2019.
2. A.K. Singh; et al, “Power System Dynamic State Estimation: Motivations, Definitions, Methodologies and Future Work,” *IEEE Transactions on Power Systems*, vol. 34, no. 4, pp. 3188-3198, July 2019.
3. P. Bhui; N. Senroy; A.K. Singh; B.C. Pal, “Estimation of Inherent Governor Dead-Band and Regulation Using Unscented Kalman Filter,” *IEEE Transactions on Power Systems*, vol. 33, no. 4, pp. 3546-3558, July 2018.
4. A.K. Singh; B.C. Pal, “Decentralized Robust Dynamic State Estimation in Power Systems using Instrument Transformers,” *IEEE Transactions on Signal Processing*, vol. 66, no. 6, pp. 1541-1550, Mar. 2018.
5. A.K. Singh; B.C. Pal, “Decentralized Nonlinear Control for Power Systems using Normal Forms and Detailed Models,” *IEEE Transactions on Power Systems*, vol. 33, no. 2, pp. 1160-1172, Mar. 2018.
6. A.K. Singh; B.C. Pal, “An Extended Linear Quadratic Regulator for LTI Systems with Exogenous Inputs,” *Automatica*, vol. 76, pp. 10-16, Feb. 2017.
7. A.K. Singh; et al, “Benchmark Models for Analysis and Control of Small Signal Oscillatory Dynamics in Power Systems,” *IEEE Transactions on Power Systems*, vol. 32, no. 1, pp. 715-722, Jan 2017. (citations: 55)
8. A.K. Singh; B.C. Pal, “Decentralized Control of Oscillatory Dynamics in Power Systems Using an Extended LQR,” *IEEE Transactions on Power Systems*, vol. 31, no. 3, pp. 1715-1728, May 2016. (citations: 31)
9. M.A.M. Ariff, B.C. Pal; A.K. Singh, “Estimating Dynamic Model Parameters for Adaptive Protection and Control in Power System,” *IEEE Trans. on Power Syst.*, vol.30, no.2, pp. 829-839, Mar. 2015. (citations: 62)

10. A.K. Singh; R. Singh; B.C. Pal, "Stability Analysis of Networked Control in Smart Grids," *IEEE Transactions on Smart Grid*, vol.6, no.1, pp. 381-390, Jan. 2015. (citations: 83)
11. A.K. Singh; B.C. Pal, "Decentralized Dynamic State Estimation in Power Systems Using Unscented Transformation," *IEEE Transactions on Power Systems*, vol. 29, no. 2, pp. 794-804, Mar. 2014. (citations: 158)

Book

Authored a book titled 'Dynamic Estimation and Control of Power Systems' (Publisher: Academic Press, Elsevier; published on 8 Oct. 2018)

IEEE technical Task Force reports

1. (In alphabetical order) C. Canizares; T. Fernandes; E. Geraldi Junior; L. Gerin-Lajoie; M. Gibbard; I. Hiskens; J. Kersulis; R. Kuiava; L. Lima; F. De Marco; N. Martins; B. Pal; A. Piardi; R. Ramos; J. dos Santos; D. Silva; A.K. Singh; B. Tamimi; D. Vowles, "Benchmark systems for small signal stability analysis and control", *IEEE PES Technical Report-TR18*, 2015. [Online] <http://resourcecenter.ieee-pes.org/pes/product/technical-publications/PESTR18>
2. A.K. Singh; B.C. Pal, Report on the 68-Bus, 16-Machine System, *IEEE PES Task Force on Benchmark Systems for Stability Controls*, 3 Dec. 2013. [Online] <http://eioc.pnnl.gov/benchmark/ieeess/index.htm> (citations: 60)

Professional activities with IEEE

Editor

- *IEEE Transactions on Power Systems*, Jan. 2019 - present.

Tutorial

- *Dynamic State Estimation for Power System Dynamic Monitoring, Protection and Control: Motivations, Tools, and Experiences*, IEEE Power and Energy Society General Meeting, Atlanta, GA, 4 Aug. 2019.
- *Synchrophasor Estimation and Control of Power System Dynamics*, IEEE Power and Energy Society General Meeting, Chicago, Illinois, 16 Jul. 2017.

Guest lecture

- *Decentralized Estimation and Control for Power Systems*, Indian Institute of Technology Kanpur, India (under PES/IAS Chapter, IEEE UP Section), 9 Jan. 2015.

Session chair

- Transaction Session Chair: IEEE Power and Energy Society General Meeting, Boston, USA, 17-21 Jul. 2016.
- Transaction Session Chair: IEEE Power and Energy Society General Meeting, Denver, USA, 26-30 Jul. 2015.

Refereeing

- Journals: *IEEE Transactions on Power Systems*, *IEEE Transactions on Sustainable Energy*, *IEEE Transactions on Power Delivery*, *IEEE Transactions on Selected Topics in Signal Processing*, *IEEE Transactions on Neural Networks and Learning Systems*, *IEEE Transactions on Control of Network Systems*, *IEEE Power Engineering Letters* and *Journal of IEIB*.
- Conferences: IEEE Power and Energy Society General Meetings, 2013-2016; IEEE Conference on Design and Control, 2016 and IEEE International Conference on Power Systems, 2016.

Memberships

- Member of IEEE and Power and Energy Society (PES), 2012-present.
- Member of IEEE PES Task Force on Dynamic State and Parameter Estimation, 2017-present.
- Member of IEEE PES Task Force on Benchmark Systems for Stability Controls, 2013-2015. Contributed to the development of the 68-bus benchmark system.

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