

# Stanford

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## Anirudh Allam

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### Bio

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#### HONORS AND AWARDS

- Centennial Teaching Assistant Award, Stanford University (2020)

#### STANFORD ADVISORS

- Simona Onori, Postdoctoral Faculty Sponsor

#### PATENTS

- Anirudh Allam, Simona Onori. "United States Patent WO/2020/186269 BATTERY MONITORING SYSTEM", LELAND STANFORD JUNIOR UNIVERSITY, Mar 16, 2020
- Anirudh Allam, Ashokkumar Velusamy. "India Patent 3652/CHE/2012 DETECTION OF UNDER-INFLATED TIRES", NISSAN MOTOR CO. LTD., Jul 3, 2015
- Anirudh Allam, Ashokkumar Velusamy. "India Patent 3653/CHE/2012 DETECTION OF UNDER-INFLATED TIRES", NISSAN MOTOR CO. LTD., Jul 3, 2015

### Publications

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#### PUBLICATIONS

- **Linearized Versus Nonlinear Observability Analysis for Lithium-Ion Battery Dynamics: Why Respecting the Nonlinearities Is Key for Proper Observer Design** *IEEE ACCESS*  
Allam, A., Onori, S.  
2021; 9: 163431-163440
- **Pushing the Eenvelope in Battery Estimation Algorithms.** *iScience*  
Allam, A., Catenaro, E., Onori, S.  
2020; 23 (12): 101847
- **Online Capacity Estimation for Lithium-Ion Battery Cells via an Electrochemical Model-Based Adaptive Interconnected Observer** *IEEE Transactions on Control Systems Technology*  
Allam, A., Onori, S.  
2020: 16
- **Exploring the dependence of cell aging dynamics on thermal gradient in battery modules: A PDE-based time scale separation approach** *European Control Conference (ECC)*  
Allam, A., Onori, S.  
2019
- **An Interconnected Observer for Concurrent Estimation of Bulk and Surface Concentration in the Cathode and Anode of a Lithium-ion Battery** *IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS*  
Allam, A., Onori, S.  
2018; 65 (9): 7311–21
- **Characterization of Aging Propagation in Lithium-ion Cells Based on an Electrochemical Model**  
Allam, A., Onori, S., IEEE  
IEEE.2016: 3113–18
- **Battery Health Management System for Automotive Applications: A retroactivity-based aging propagation study**

Allam, A., Onori, S., Marelli, S., Taborelli, C., IEEE  
IEEE.2015: 703–16

- **Lithium-ion battery aging dataset based on electric vehicle real-driving profiles.** *Data in brief*  
Pozzato, G., Allam, A., Onori, S.  
2022; 41: 107995
- **Second-life Lithium-ion batteries: A chemistry-agnostic and scalable health estimation algorithm** *arXiv preprint: 2203.04249*  
Takahashi, A., Allam, A., Onori, S.  
2022
- **Extending Life of Lithium-ion Battery Packs by Taming Heterogeneities via an Optimal Control-based Active Balancing Strategy** *arXiv preprint: 2203.04226*  
Azimi, V., Allam, A., Onori, S.  
2022
- **Offline multiobjective optimization for fast charging and reduced degradation in lithium ion battery cells**  
Lam, F., Allam, A., Joe, W., Choi, Y., Onori, S., IEEE  
IEEE.2021: 4441-4446
- **Fast Charging-Minimum Degradation Optimal Control of Series-Connected Battery Modules with DC/DC Bypass Converters** *IEEE American Control Conference (ACC)*  
Azimi, V., Allam, A., Joe, W., Choi, Y., Onori, S.  
2021
- **Stochastic capacity loss and remaining useful life models for lithium-ion batteries in plug-in hybrid electric vehicles** *JOURNAL OF POWER SOURCES*  
Chu, A., Allam, A., Arenas, A., Rizzoni, G., Onori, S.  
2020; 478
- **Offline Multiobjective Optimization for Fast Charging and Reduced Degradation in Lithium-ion Battery Cells using Electrochemical Dynamics** *IEEE Control Systems Letters*  
Lam, F., Allam, A., Joe, W., Choi, Y., Onori, S.  
2020
- **A Novel Lithium-ion Battery Pack Modeling Framework - Series-Connected Case Study**  
Weaver, T., Allam, A., Onori, S., IEEE  
IEEE.2020: 365–72