nitin bhushan

data science | energy transition | research

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profile

Curious about the dynamics involved in a data-driven energy transition, I spend my time connecting the dots between digitalisation of energy, artificial intelligence and machine learning, and behavioural sciences.

education

PhD | statistical modelling

university of groningen
netherlands | sep 2019

- topics: energy modelling, demand side management, graphical models, causality
- developed models to explore and understand the human dimension of the energy transition
- advisors: linda steg, casper albers

MSc | artificial intelligence

maastricht university
netherlands | 2013

- foundations in stochastic modelling
- relevant courses: data mining & machine learning,text mining, multi-agent systems

BE | electrical engineering

msrit | bangalore, india | 2009

- foundations in energy systems
- relevant courses: engineering mathematics, control theory, network analysis, signal processing, power systems analysis

tools & skills

expert: python • R • LaTeX
proficient: MS Excel • SQL • C#
algorithms

- data visualisation
- clustering & segmentation
- Bayesian inference
- time-series modelling & forecasting
- predictive & causal modelling

experience

University of Groningen | lecturer & consultant

september 2015 - september 2019 | groningen, netherlands

- internal consultant: statistical modelling of energy data.
- developed tools to evaluate the effectiveness of energy efficiency programs and model big data in the electricity sector.
- designed and developed an interactive dashboard using r-shiny to apply the tools.
- delivered lectures in statistical modelling (>300 students).
- project management: initiated, collaborated and delivered on multi-disciplinary projects.
- supervision & training of junior researchers.

TU Eindhoven | smart energy systems trainee

january 2014 - june 2015 | eindhoven, netherlands

- developed innovative business models to fund the sustainable renovation of the city hall in Eindhoven.
- developed a smart lighting system for the Vertigo building at the TU Eindhoven
- created future energy scenarios and provided optimal technology-based solutions in each scenario.

Xerox research | machine learning intern

january 2013 – september 2013 | grenoble, france

- developed an extension to the hidden Markov model to describe sequential data. where the state duration follows a truncated distribution and the dynamics of the model depend on whether the truncation was reached.

Xerox Research | energy management system intern

june 2012 – december 2013 | grenoble, france

- developed a smart energy management system for electrical devices.
- delivered production-ready code in Python to learn consumption profiles of Xerox devices.

Infosys technologies | systems engineer trainee

2010 - 2011 | bangalore, india

- extensive training on SQL and object oriented programming with Java and C.

entrepreneurship

Winner | living data city challenge

eindhoven, netherlands | 2015

- identitrash: our trash, community treasure
- developed a new business model for waste management

Summer school | ESADE barcelona, spain | 2014

- design thinking, entrepreneurial finance, marketing, new product development, service innovation, HR management, managing growth, intellectual property.

inter-disciplinary

has worked with
engineers • architects
applied psychologists • statisticians
data scientists • designers
sales & marketing managers

languages

fluent
english • hindi • tamil
intermediate
dutch [A2-B1]

interests

likes
rock climbing & bouldering • cooking not-too-spicy indian food • to bike around the Netherlands • science fiction movies and books • vrijmibo in the sun

would like to
swim well • learn the drums • ride through Patagonia

online courses

data science
The Data scientist's Toolbox
R programming
Machine Learning
Probabilistic Graphical Models
Introduction to Mathematical Thinking
Statistical Inference

business modelling
Introduction to Spreadsheets and Models
Fundamentals of Quantitative Modelling

energy systems
solving the energy puzzle

core competencies

- digitalization of the energy sector & smart energy systems
- statistical modelling & data science
- project management
- consulting
- leadership & collaboration

papers / talks

peer-reviewed publications

- Using a Gaussian Graphical Model to Explore Relationships Between Items and Variables in Environmental Psychology Research.
  Frontiers in Psychology.
  doi: 10.3389/fpsyg.2019.01050/
- Studying the effects of intervention programmes on household energy saving behaviours using graphical causal models.
  Energy Research & Social Science.
  doi: 10.1016/j.erss.2018.07.027

international conference talks

- Comparing causal search methods.
  5th International Conference on Computational Social Science.
  Amsterdam, Netherlands, July 2019.
- Using Gaussian graphical models in environmental psychology.
  29th International Conference of Applied Psychology.
  Montreal, Canada, June 2018.
- Detecting patterns in household electricity consumption after behavioural interventions.
  4th European Conference on Behaviour and Energy Efficiency.
  Coimbra, Portugal, Sep 2016.

outside activities & awards

UM high potential scholarship — awardee
bharat scouts & guides — governer's award
indian student association maastricht — secretary
heymans symposium 2015 — organising committee
clean green civic club — founder