

# Matthias Huels

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Applied Scientist, PhD, and Engineer at the frontier of machine learning and real-world systems. Currently at Datadog's Bits AI team, building production agentic AI for on-call incident investigation. Inventor of *Dynamic Load Shaping*, namesake of the *Huels Test* (a Turing-inspired benchmark for evaluating whether a VPP is indistinguishable from a gas peaker), and creator of *Stacktower*. Deep expertise in LLM agents, ML systems engineering, control theory, and optimization.

## EXPERIENCE

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**Datadog** - New York, NY, USA **2025 – Present**

*Senior Applied Scientist*

Building production agentic AI as part of the [Bits AI](#) team:

- Designing and shipping *Bits Investigation* — an agentic system that autonomously triages alerts, correlates signals across metrics, logs, and traces, and guides on-call engineers to root cause and remediation.
- Developing the agent reasoning, tool use, and evaluation infrastructure that powers reliable agentic behavior at Datadog's enterprise scale.

**EnergyHub** - Brooklyn, NY, USA **2021 – 2025**

*Senior Data Scientist*

Led data science for virtual power plant operations — forecasting, control, and coordination of distributed energy resources:

- Invented *Dynamic Load Shaping*, a system for coordinating distributed energy resources to deliver precise power outputs, rivaling traditional power plants. Developed a custom ML-based model predictive control strategy and demonstrated its effectiveness with three of the largest U.S. utilities ([blog post](#), [Canary Media](#)).
- Namesake of the *Huels Test* — a Turing-inspired benchmark for evaluating whether a VPP is operationally indistinguishable from a gas peaker plant, covered by [IEEE Spectrum](#), [Utility Dive](#), and [Tech Brew](#).
- Led migration of data infrastructure to Snowflake, achieving a 55% reduction in time to deliver telemetry insights to utility clients ([Snowflake blog post](#)).
- Built a high-performance simulation environment for EV charging, enabling virtual testing of managed charging solutions at thousands of scenarios per run ([blog post](#)).

**Hella Aglaia Mobile Vision** - Berlin, Germany **2018 – 2021**

*Data Scientist*

Co-led the AI Solutions group, shipping production ML systems for automotive and manufacturing:

- Led development of a deep learning quality inspection system for laser welding, achieving real-time anomaly detection and saving \$300k annually.
- Implemented anomaly detection for vehicle diagnostic telemetry, achieving 80% first-time diagnostic accuracy and scaling to 100% of customers globally ([press release](#)).

**Siemens Energy** - Muelheim a.d. Ruhr, Germany **2015 – 2018**

*R&D Engineer / PhD Researcher*

Applied PhD research to gas turbine engineering design challenges:

- Built a custom framework to automate multi-disciplinary simulations, reducing design iteration time by 10x.
- Integrated evolutionary optimization algorithms into engineering workflows, enabling fully autonomous turbine blade design.

## EDUCATION

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<b>Leibniz University of Hannover</b> PhD, <i>Mechanical Engineering with concentration in non-linear dynamics</i> Thesis: “ <i>The influence of geometric design parameters on the dynamics of turbine blades with friction joints</i> ”	<b>2020</b>
<b>RWTH Aachen University</b> Master of Science, <i>Mechanical Engineering with a focus on numerical simulation methods</i>	<b>2015</b>
<b>University of California, Berkeley</b> Visiting Scholar, <i>graduate-level coursework in Mechanical Engineering</i>	<b>2014</b>
<b>RWTH Aachen University</b> Bachelor of Science, <i>graduated among top 5% of the class</i>	<b>2013</b>
<b>University of California, Davis</b> Visiting Scholar, <i>undergraduate-level coursework in Mechanical Engineering</i>	<b>2012</b>

## HONORS AND AWARDS

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<b>Dr. Jürgen Ulderup Prize</b> - Leibniz University of Hannover Awarded to graduates of the Faculty of Mechanical Engineering for exceptional PhD thesis	<b>2022</b>
<b>Springorum Commemorative Coin</b> - RWTH Aachen University Awarded for graduating among the top 3% of the class with highest distinction	<b>2015</b>

## PUBLICATIONS

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Peer-reviewed journal publications as lead author:

<b>Huels, M., Panning, L., Wallaschek, J.</b> “ <i>Combined airfoil and snubber design optimization of turbine blades with respect to friction damping</i> ” <a href="#">Published</a> in <i>ASME Journal of Turbomachinery</i>	<b>2018</b>
<b>Huels, M., Panning, L., Wallaschek, J.</b> “ <i>Influence of geometric design parameters on vibratory response and HCF safety for turbine blades with friction damper</i> ” <a href="#">Published</a> in <i>ASME Journal of Engineering for Gas Turbines and Power</i>	<b>2018</b>

## SELECTED PROJECTS

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<b>Stacktower</b> A CLI and web app that renders package dependency graphs as physical tower structures — width encodes importance, depth reveals foundations, making hairball dependency graphs readable at a glance: <ul style="list-style-type: none"><li>• Built in Go; supports PyPI, npm, and crates.io with optimal crossing minimization using PQ-tree algorithms.</li><li>• Listed in <a href="#">Awesome Go</a>, featured in <a href="#">TLDR</a> and <a href="#">Programmer Weekly</a>, and voted #1 post of the week on <a href="#">Reddit r/programming</a>.</li></ul>	<a href="https://stacktower.io">stacktower.io</a> · <a href="https://app.stacktower.io">app.stacktower.io</a>
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