# KUTAY BERK SEZGINEL

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<https://kut.ai> | Online version of this resume is available here: <https://kut.ai/cv/>

## PROFESSIONAL EXPERIENCE

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| ***Senior Data Scientist*** | Jan 2020 - present |
| Liaison International | Remote (US) |

* Build, validate, and troubleshoot machine learning models using internal tools and metrics and perform individual research on various modeling problems.
* Create product roadmaps to determine and implement specific release features for the data science engine (including unit and integration tests for validation) on a quarterly basis while ensuring compliance with SOC 2 Type 2 certification and integration with CI/CD tools to improve process efficiency and code quality.
* Create and maintain an internal website to document library usage, modeling approaches, research experiments and communicate data science results and insights to team members and customers.
* Periodically review customer data and models to identify significant changes and/or issues in the data or predictions, develop software to automate stringent data checks to identify and address inconsistent data issues and leak variables.

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| ***Computational Engineering Fellow*** | Jan 2019 – May 2019 |
| NuMat Technologies, Inc. | Skokie, IL |

* Developed of a proprietary Python library for computational materials design that integrates various molecular simulations tools with high-performance cloud computing (AWS). Created a workflow to perform reproducible and trackable experiments. Ran a high-throughput screening study and built machine learnings to discover next generation candidate materials.
* Designed and 3D printed custom parts to improve speed and decrease material loss during production. Developed process controllers (hardware and software) with a web interface.

## EDUCATION

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| ***Doctor of Philosophy in Chemical & Petroleum Engineering*** | Sep 2015 – Jan 2020 |
| University of Pittsburgh, Swanson School of Engineering | Pittsburgh, PA |

* Dissertation Title: “*Computational materials design for molecular machinery: From nanoporous crystals to nanoscale racecars*”
* Adviser: Dr. Christopher E. Wilmer

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| ***Master of Science in Chemical & Biological Engineering*** | Sep 2013 – June 2015 |
| Koc University, Graduate School of Science and Engineering | Istanbul, Turkey |

* Dissertation Title: *“Computational and Experimental Investigation of Methane Adsorption in Pure and Ionic Liquid Modified Metal-Organic Frameworks”*

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| ***Bachelor of Science in Chemical & Biological Engineering*** | Sep 2008 – June 2013 |
| Koc University, School of Engineering | Istanbul, Turkey |
| *Energy and Environmental Engineering Track* |  |

## RESEARCH AND TEACHING EXPERIENCE

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| ***Graduate Research Assistant*** | Sep 2015 – Jan 2020 |
| Hypothetical Materials Lab, University of Pittsburgh | Pittsburgh, PA |

* Developed computational methods for functional materials design including materials such as metal-organic frameworks, supramolecular cages, and artificial molecular machines. Ran high-throughput screening studies with molecular simulations. Performed data analysis and built ML models using open-source and self-developed Python libraries.
* Organization of world’s first computational nanocar race: [Formula Nano](https://formulanano.com/).
* Recreation of the lab website ([wilmerlab.com](https://kutaybs.com/)) on GitHub and maintenance as web administrator.

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| ***Teaching Assistant and Graduate Mentor*** | Spring 2016 – 2020 |
| Hypothetical Materials Lab, University of Pittsburgh | Pittsburgh, PA |

* Mentored three undergraduate and two master students in data collection and analysis for various projects.
* Guided the students in preparation and presentation of research findings.
* Helped prepare teaching material, graded exams and Teaching assistant for 6 classes
* Instructed weekly lab sessions for teaching Aspen HYSYS software. Prepared and graded quizzes for lab sessions, assigned four design projects and evaluated them, proctored the midterms and finals.

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| ***Graduate Research Assistant*** | Sep 2013 – June 2015 |
| Nanomaterials, Energy and Molecular Modelling Research Group &  Koc University University Tupras Energy Center (KUTEM) | Istanbul, Turkey |

* High-throughput screening of porous materials (MOFs) for gas storage and separation applications using molecular simulations. First lab member to automate many in-house computational procedures.
* Investigated the structural and thermodynamic properties of MOFs to understand methane adsorption mechanism and constructed models to predict natural gas storage of MOFs at various conditions.
* Post-synthetic modifications of porous materials using ionic liquids to improve gas storage/selectivity performances. Characterization by TGA, XRD, FT-IR, surface area and gas adsorption measurements.

## PUBLICATIONS & CONFERENCE PRESENTATIONS

## 11 peer reviewed publications (6 first author and 5 second author)

## 280+ citations

## 12 international conference presentations (in-person, oral)

**HONORS & AWARDS (selected)**

## Braskem America Inc. Award (outstanding PhD student in Chemical Eng., University of Pittsburgh)

## IBM BlueHack Competition, Second Place (2019)

## Innocentive challenge winner *Chemical Sorbents for Fixed Bed Mercury (Hg0) Control* ($5000 prize)

## Full Merit Scholarship – University of Pittsburgh PhD & Koc University, BS and MS

**INTERESTS**

## Music production, teach a live music + yoga class biweekly, develop software tools for Turkish makam music, 3D printing, robotics, DIY, scientific visualization, generative art, rock climbing

## References will be provided upon request.