

# UĞURCAN VURGUN

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## RESEARCH INTERESTS

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AI-driven healthcare interventions; natural language processing in clinical settings; machine learning for medical diagnostics; biomedical informatics; automated speech analysis for neurological conditions; large language models for healthcare applications

## EDUCATION

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**University of Pennsylvania, Perelman School of Medicine, Philadelphia** *2023 - 2025*  
Master of Science (MS) in Biomedical Informatics  
Institute for Biomedical Informatics

**University of Pennsylvania, Philadelphia** *2019 - 2024*  
Ph.D. in Cognitive Psychology and Psycholinguistics  
Thesis Title: From Words to Worlds: Telicity and the Malleability of Event Representations  
Interdisciplinary graduate certificate in Language and Communication Sciences (LCS)

**Boğaziçi University, Istanbul** *2015 - 2019*  
Master of Arts (MA) in Linguistics

**Koç University, Istanbul** *2002 - 2007*  
Bachelor of Arts (BA) in Business Administration

## TEACHING / PROJECT MANAGEMENT EXPERIENCE

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**University of Pennsylvania College of Liberal and Professional Studies**  
LING 0001 Introduction to Linguistics *Summer 2023 & Summer 2024*  
Instructor for the course

- Integrated AI and NLP concepts, including demonstrations of large language models (LLMs)
- Developed curriculum exploring intersections of linguistics, AI, and computational methods
- Guided students in practical applications of software-oriented tools for linguistic analysis and research

**University of Pennsylvania Perelman School of Medicine**  
BMIN 5220 Natural Language Processing For Health *Fall 2024*  
Teaching Assistant for the course

- Facilitated hands-on support on applying LLMs to electronic health records and clinical data analysis

Professor: Danielle L. Mowery

**University of Pennsylvania School of Engineering and Applied Sciences**  
CIS 5300 Natural Language Processing *Fall 2024*  
Teaching Assistant for the course

- Guided students in implementing state-of-the-art NLP models, including transformer architectures and fine-tuning techniques

Professor: Mark Yatskar

**The Wharton School**  
MGMT 8920 Advanced Study Program - Collaborative Innovation Program *Fall 2024*  
Teaching Assistant for six project teams (MBA/WEMBA students)  
Leading projects in healthcare and AI applications, including development of an AI-driven robotic dental device for Penn Dental Medicine and optimization of surgical planning using 3D-printed anatomic

models for Ricoh Healthcare. Also contributing to initiatives in digital philanthropy, telecommunications data analysis, and start-up ecosystem research for various corporate partners.

Professor: Scott Snyder

### **The Wharton School**

MGMT 8920 Advanced Study Program - Collaborative Innovation Program

*Spring 2024*

Teaching Assistant for four project teams (MBA/WEMBA students)

Guided projects on AI-led transformation for TATA Communications, developing partnership strategies for CHOP's Center of Advanced Diagnostics, and exploring green algorithms and AI's environmental impact for Willis Towers Watson. Also mentored a team on connected strategy for Tigo's Telecom Wholesale Business, focusing on market segmentation and process automation.

Professor: Xu (Henry) Han

### **The Wharton School**

MGMT 8920 Advanced Study Program - Collaborative Innovation Program

*Fall 2023*

Teaching Assistant for four project teams (MBA/WEMBA students)

Mentored teams on AI-driven projects including intelligent software testing for Coforge and strategic AI integration for Ricoh's digital services. Guided healthcare-related initiatives to enhance plasma donor experiences at CSL Behring. Additionally, facilitated a project on AR/VR integration in Assurant's Connected Living services, focusing on improving customer experiences and market potential.

Professor: Scott Snyder

### **University of Pennsylvania**

LING 0001 Introduction to Linguistics

*Fall 2022*

Teaching Assistant for two sections

Professor: Mark Liberman

LING 001 Introduction to Linguistics

*Fall 2021*

Teaching Assistant for two sections

Professor: Gareth Roberts

LING 001 Introduction to Linguistics

*Spring 2021*

Teaching Assistant for two sections

Professor: Martin Salzmann

### **Boğaziçi University, Istanbul**

LING 101 Introduction to Linguistics

*Fall 2018*

Teaching Assistant

Professor: Mine Nakipoğlu

## **PUBLICATIONS**

**Vurgun, U.**, Kaviyarasu, A., Hwang, S., Acevedo, A., Mowery, D. L., Abella, B. S., & Mitchell, O. J. L. (2024). Reliability in AI-assisted critical care: Assessing large language model robustness and instruction following for cardiac arrest identification. 38th Conference on Neural Information Processing Systems (NeurIPS 2024).

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2024). Aspectual processing shifts visual event apprehension. *Cognitive Science*, 48(6), e13476.

Li, C., Mowery, D. L., Ma, X., Yang, R., **Vurgun, U.**, Hwang, S., Donnelly, H. K., Bandhey, H., Akhtar, Z., Senathirajah, Y., Sadhu, E. M., Getzen, E., Freda, P. J., Long, Q., Becich, M. J. (2024). Realizing the potential of social determinants data: A scoping review of approaches for screening, linkage, extraction, analysis, and interventions. *Journal of Clinical and Translational Science*.

**Vurgun, U.** (2019). The syntax of focus particles in Turkish. Unpublished master's thesis, Boğaziçi University. Advisors: Dr. H. Mine Nakipoğlu & Dr. A. Sumru Özsoy.

**Vurgun, U.** (2018). Book review - Contemporary Morphological Theories: A User's Guide. Thomas W. Stewart, 2015. Edinburgh: Edinburgh University Press. 192 pages. ISBN 978 07 486 9268 2. *Journal of Linguistic Research*, 29(2), 129-137.

## CONFERENCE PROCEEDINGS

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**Vurgun, U.**, Ji, Y., & Papafragou, A. (2024). Detecting event construal shifts in aspectual coercion. Proceedings from the 46th Annual Meeting of the Cognitive Science Society.

**Vurgun, U.**, Heesu, Y., Landau, B., & Trueswell, J. (2024). Real-time processing of symmetrical predicates: Semantic categorization over time. Proceedings from the 46th Annual Meeting of the Cognitive Science Society.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2023). Cognitive signatures of aspectual coercion. Proceedings from the 45th Annual Meeting of the Cognitive Science Society.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2022). Linguistic aspect constrains event apprehension. Proceedings from the 44th Annual Meeting of the Cognitive Science Society.

## SELECTED PRESENTATIONS

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**Vurgun, U.**, Ji, Y., & Papafragou, A. (2024). Detecting event construal shifts in aspectual coercion. Oral presentation at the 46th Annual Meeting of the Cognitive Science Society, Rotterdam, Netherlands.

**Vurgun, U.**, Heesu, Y., Landau, B., & Trueswell, J. (2024). Real-time processing of symmetrical predicates: Semantic categorization over time. Poster presentation at the 46th Annual Meeting of the Cognitive Science Society, Rotterdam, Netherlands.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2024). Aspectual Coercion: A New Method to Probe Aspectual Commitments. Oral presentation at the Experiments in Linguistic Meaning (ELM) Conference, University of Pennsylvania.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2024). Aspectual Coercion: A New Method to Probe Aspectual Commitments. Poster presentation at the 37th Annual Conference on Human Sentence Processing, University of Michigan, Ann Arbor.

**Vurgun, U.**, Yun, H., Landau, B., & Trueswell, J. (2024). Symmetrical or not?: A new method to probe real-time semantic categorization. Poster presentation at the 37th Annual Conference on Human Sentence Processing, University of Michigan, Ann Arbor.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2024). Cognitive signatures of aspectual coercion. Poster presentation at the 10th Mid-Atlantic Colloquium of Studies in Meaning (MACSIM), University of Maryland, College Park.

**Vurgun, U.**, Cho, S., Fusaroli, R., Ip, M. H. K., Pelella, M. R., Knox, A., et al. (2024). Detecting Autism through Automated Speech Analysis: The Role of Model Complexity and Dataset Balance. Poster presentation at the International Society for Autism Research Annual Meeting, Melbourne, Australia.

**Vurgun, U.**, Cho, S., Fusaroli, R., Ip, M. H. K., Pelella, M. R., Knox, A., Schillinger, S., Hauptmann, A., Covello, M., Madya, M., Lyons, M., Lee, A., Fulop, L., Adeniyi, H., Russell, A., Hicks, G., Anello, O., Walker, K., Fiumara, J., Tunç, B., Sariyanidi, E., Liberman, M., Schultz, R. T., & Parish-Morris, J. (2024). Detecting Autism through Automated Speech Analysis: The Role of Model Complexity and Dataset Balance. Poster presentation at the International Society for Autism Research Annual Meeting, Melbourne, Australia.

Kaviyarasu, A., **Vurgun, U.**, Hwang, S., Acevedo, A., Mowery, D. L., Abella, B. S., & Mitchell, O. J. L. (2024). Leveraging large language models to optimize clinical text analysis for in-hospital cardiac

arrest identification. Poster presentation at the Department of Medicine Research Day, University of Pennsylvania.

Cho, S., **Vurgun, U.**, Fusaroli, R., Ip, M. H. K., Pelella, M. R., Knox, A., Hauptmann, A., Covello, M., Madya, M., Lyons, M., Lee, A., Fulop, L., Schillinger, S., Russell, A., Hicks, G., Walker, K., Fiumara, J., Chatham, C., Liberman, M., Schultz, R. T., & Parish-Morris, J. (2024). Stable Acoustic Differences between Autistic and Neurotypical Children: A Longitudinal Telephony Study. Oral presentation at the International Society for Autism Research Annual Meeting, Melbourne, Australia.

Cho, S., **Vurgun, U.**, Fusaroli, R., Ip, M. H. K., Pelella, M. R., Knox, A., Hauptmann, A., Covello, M., Madya, M., Lyons, M., Lee, A., Fulop, L., Russell, A., Hicks, G., Fiumara, J., Pandey, J., Tunç, B., Sariyanidi, E., Liberman, M., Schultz, R. T., & Parish-Morris, J. (2024). Automatically-derived Lexical Features Distinguish Autistic Teens from Neurotypical Peers and Teens with Other Psychiatric Conditions in a Natural Conversation Task. Oral presentation at the International Society for Autism Research Annual Meeting, Melbourne, Australia.

Ip, Martin H. K., Putnam, O., Cho, S., **Vurgun, U.**, Lyons, M., Knox, A., Hauptmann, A., Covello, M., Madya, M., Adeniyi, H., Hicks, G., Anello, O., Walker, K., Fiumara, J., Cieri, C., Fusaroli, R., Chatham, C., Liberman, M., Schultz, R. T., Parish-Morris, J. (2024). Prosodic similarities and variation in autistic and neurotypical children: A telephone-based study of verbal counting. Oral presentation at the International Society for Autism Research Annual Meeting, Melbourne, Australia.

**Vurgun, U.**, Cho, S., Fusaroli, R., Ip, M. H. K., Pelella, M. R., Knox, A., Hauptmann, A., Covello, M., Madya, M., Lyons, M., Lee, A., Schillinger, S., Fulop, L., Adeniyi, H., Russell, A., Fiumara, J., Hicks, G., Anello, O., Walker, K., Tunç, B., Sariyanidi, E., Liberman, M., Schultz, R. T., & Parish-Morris, J. (2024). Automatic classification of autism using automatic speech recognition and large language models (LLMs). Poster presentation at Meeting on Language and Autism, Durham, NC.

Cho, S., **Vurgun, U.**, Fusaroli, R., Ip, M. H. K., Pelella, M. R., Knox, A., Hauptmann, A., Covello, M., Madya, M., Lyons, M., Lee, A., Schillinger, S., Fulop, L., Russell, A., Hicks, G., Fiumara, J., Pandey, J., Tunç, B., Sariyanidi, V., Liberman, M., Schultz, R. T., & Parish-Morris, J. (2024). Autistic teens' word choice differs from neurotypical peers and teens with attention-deficit/hyperactivity disorder (ADHD) in a natural conversation task. Poster presentation at Meeting on Language and Autism, Durham, NC.

Ip, M. H. K., Putnam, O. C., Cho, S., **Vurgun, U.**, Lyons, M., Knox, A., Hauptmann, A., Covello, M., Fulop, L., Russell, A., Walker, K., Miller, J., Fiumara, J., Fusaroli, R., Chatham, C., Cieri, C., Lee, A., Liberman, M., Schultz, R. T., & Parish-Morris, J. (2024). Does speech prosody differ in a socially unengaging task? Preliminary findings from autistic and non-autistic children's verbal counting. Poster presentation at Meeting on Language in Autism, Durham, NC.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2023). Aspectual processing and event perception. Poster presentation at the 36th Annual Conference on Human Sentence Processing, University of Pittsburgh.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2023). Lexical aspect maps onto event apprehension. Poster presentation at the 9th Mid-Atlantic Colloquium of Studies in Meaning (MACSIM), University of Pennsylvania, Philadelphia.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2023). Aspectual framing of events shifts online event apprehension. Poster presentation at the 98th Annual Meeting of the Linguistic Society of America, Denver, CO.

**Vurgun, U.**, Ji, Y., & Papafragou, A. (2022). Lexical aspect maps onto event apprehension. Oral presentation at the 2nd Experiments in Linguistic Meaning Conference, University of Pennsylvania.

**Vurgun, U.** (2020). Both locative alternation variants in Turkish are change-of-state predicates with ResultPs. Oral presentation at the 4th Conference of Central Asian Language and Linguistics, Indiana University.

**Vurgun, U.** (2019). A lexical-typological approach explaining the limited existence of locative alternation in Turkish. Poster presentation at the 4th Workshop on Turkic and Languages in Contact with Turkic (Tu+4), NYU.

## REVIEWING

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Folia Linguistica

CogSci (The Annual Conference of Cognitive Science Society)

Journal of Clinical and Translational Science

Pacific Symposium on Biocomputing

## GRANTS, FELLOWSHIPS, AND AWARDS

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**Benjamin Franklin Fellowship, University of Pennsylvania** 2019 - 2024

**University of Pennsylvania, Language and Communication Sciences Research Fund** 2021, 2022, 2023, 2024

**University of Pennsylvania, Integrated Language Sciences and Technology Research Fund** 2022, 2023, 2024

**Simons Foundation Autism Research Initiative (SFARI) Travel Award** 2024

**The 48th Annual Boston University Conference On Language Development, Diversity Travel Award** 2023

**University of Pennsylvania, GAPSA Research Travel Grant** 2022

**University of Pennsylvania, SAS Dean's Travel Subvention** 2022

**Boğaziçi University, Research Travel Grant** 2019

**Vehbi Koç Fellowship, Koç University** 2002 - 2007

## TECHNICAL SKILLS

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<b>Programming &amp; Analysis</b>	R, Python, PyTorch, TensorFlow, SQL, JavaScript
<b>Machine Learning</b>	Scikit-learn, Keras, XGBoost
<b>Large Language Models</b>	HuggingFace Transformers
	- Fine-tuning: Transfer learning, Few-shot learning
	- Advanced techniques: Prompt engineering, PEFT, LoRA
	- Deployment: Model compression, Quantization
<b>Software &amp; Tools</b>	Eye Tracking (Tobii), PCLbex, PsychoPy
<b>Statistical Analysis</b>	Mixed-effects modeling, Time series analysis
<b>Linguistic Tools</b>	TalkBank, NLTK, spaCy
<b>Version Control</b>	Git, GitHub
<b>Data Visualization</b>	ggplot2, matplotlib
<b>Database Management</b>	SQL, MySQL, Database Design
<b>Web Development</b>	JavaScript, HTML, CSS
<b>Cloud Platforms</b>	Microsoft Azure, Databricks

## EMPLOYMENT

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**Unilever** Turkey  
*Various Roles, Including Channel and Category Development Manager* 2008 - 2018

- Progressed through multiple roles over a 10-year tenure, demonstrating consistent growth and adaptability in sales, marketing, and management positions.
- Developed and executed strategic promotional plans, resulting in increased sales, improved category penetration, and optimized promotional spending across multiple product lines.
- Led large cross-functional teams (200+ employees) across multiple regions, fostering a performance-driven culture and achieving significant improvements in turnover, market share, and profitability.
- Implemented data-driven strategies for product placement, pricing, and distribution, enhancing brand visibility and market presence.
- Collaborated with key stakeholders to create and execute joint business plans, aligning company objectives with customer and distributor goals.
- Demonstrated expertise in market research, business insights, and statistical modeling to inform strategic decision-making and drive business growth.

**Key Skills:** Strategic Planning, Team Leadership, Sales & Marketing Strategy, Market Analysis, Performance Optimization, Stakeholder Management, Trade Marketing, Supply Chain Management

## PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

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**American Psychological Association** May 2024 - Present  
*Member*

- Division 7: Developmental Psychology
- Division 33: Intellectual and Developmental Disabilities/Autism Spectrum Disorder

**Wharton Founders' Club** Oct 2023 - Present  
*Member*

**Family Resource Center, University of Pennsylvania** Sep 2019 - Jun 2020  
*Student Parent Advisory Board Member*