

FIRAT SOYLU

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Education

- 2011 INDIANA UNIVERSITY, BLOOMINGTON
PhD (dual major) – Instructional Systems Technology & Cognitive Science
- 2004 MIDDLE EAST TECHNICAL UNIVERSITY, ANKARA
BSc – Computer Education & Instructional Technology

Academic Positions

- 2020– Associate Professor of Educational Psychology & Neuroscience, The University of Alabama
- 2019– Educational Neuroscience Undergraduate Program Coordinator, The University of Alabama
- 2022 Adjunct Associate Professor, Department of Neurobiology, UAB Heersink School of Medicine
- 2020-2021 Educational Psychology Graduate Program Coordinator, The University of Alabama
- 2014–2020 Assistant Professor of Educational Psychology & Neuroscience, The University of Alabama
- 2011-2014 Postdoctoral Fellow, Center for Connected Learning and Computer-Based Modeling, Learning Sciences, Northwestern University

Research Interests

Cognitive and educational neuroscience • Mathematical cognition • Embodied cognition • STEM Education • Computational modeling

Preprints (*students)

Soylu, F. (in review). A New Cognitive Ontology for Numerical Cognition. <https://doi.org/10.31219/osf.io/3vx56>

Peer-Reviewed Publications (*students)

Soylu, F., May, K., & Kana, R. (2023). White and Gray Matter Correlates of Theory of Mind in Autism: A Voxel-Based Morphometry Study. *Brain Structure and Function*. <https://doi.org/10.1007/s00429-023-02680-5>

Salehzadeh, R., Soylyu, F., & Jalili, N. (2023) A Comparative Study of Machine Learning Methods for Classifying ERP Scalp Distribution. *Biomedical Physics & Engineering Express*, 9(4), 045027. <https://doi.org/10.1088/2057-1976/acdbd0>

- Soylu, F.** (2023). Theoretical and Educational Challenges with Enactivist Approaches to Mathematical Cognition. *Constructivist Foundations*, 18(2), 245-247. <https://constructivist.info/18/2/245>
- Salehzadeh, R.*, Rivera, B., Man, K., Jalili, N., & **Soylu, F.** (2023). EEG Decoding of Finger Numeral Configurations With Machine Learning. *Journal of Numerical Cognition*, 9(1), 206-221. <https://doi.org/10.5964/jnc.10441>
- Webber, W.B.*, **Soylu, F.**, & Burnham, J.J. (2023). Stereotyping among graduate students in mental health fields: An EEG study. *Journal of Mental Health Counseling*, 45(1), 74-92. <https://doi.org/10.17744/mehc.45.1.05>
- Anchan, M.* & **Soylu, F.** (2023). Language Matters: Mathematical Learning and Cognition in Bilingual Children. In Katherine M. Robinson, Donna Kotsopoulos, & Adam Dubé (Eds.). *Mathematical Learning and Cognition in Middle Childhood and Early Adolescence: Integrating Interdisciplinary Research into Practice*. New York City, New York: Springer Publishing
- Soylu, F.** (2022). Eğitimsel Sinirbilim Araştırma Metodları (Educational Neuroscience Research Methods). In E. Keleş (Ed.) Eğitimsel Sinirbilim [In Turkish]. Nobel Yayıncılık.
- Rivera, B.*, & **Soylu, F.** (2021). Incongruity in Fraction Verification Elicits N270 And P300 ERP Effects. *Neuropsychologia*, 161(August), 108015. <https://doi.org/10.1016/j.neuropsychologia.2021.108015>
- Suárez Pellicioni, M., **Soylu, F.**, & Booth, J. (2021). Gray matter volume in left inferior parietal sulcus predicts longitudinal gains in subtraction skill in elementary school. *Neuroimage*, 235(April), 118021. <https://doi.org/10.1016/j.neuroimage.2021.118021>
- Newman, S., Loughery, E., Ecklund, A., You, C., Von Werder, H., & **Soylu, F.** (2021). Structured versus free block play: the impact on arithmetic processing. *Trends in Neuroscience and Education*, 100146. <https://doi.org/10.1016/j.tine.2020.100146>
- Han, H., Lee, K.†, & **Soylu, F.†** (2020). Applying the Deep Learning Method for Simulating Outcomes of Educational Interventions. *SN Computer Science*, 1(2), 1-14. †Authors contributed equally. <https://doi.org/10.1007/s42979-020-0075-z>
- Soylu, F.†** & Newman, S. D.† (2020). Towards an Understanding of the Relationship Between Spatial Processing Ability and Numerical and Mathematical Cognition. *Frontiers in Psychology, Cognition*. †Authors contributed equally. <https://doi.org/10.3389/fpsyg.2020.00014>
- Soylu, F.** (2020). Matematik Öğrenme Güçlüğü'nün (Diskalkulinin) Beyinsel ve Kalıtsal Temelleri [The Neural and Hereditary Foundations of Mathematical Learning Difficulties (Dyscalculia)]. In Yılmaz Mutlu, Sinan Olkun, Levent Akgun, & Mehmet Hayri Sari (Eds.) *Diskalkuli: Matematik Öğrenme Güçlüğü*. Pegem Akademi, Ankara [In Turkish]. [Link to Chapter](#)
- Han, H.† & **Soylu, F.†**, & Anchan, M.* (2019). Connecting Levels of Analysis in Educational Neuroscience. *Trends in Neuroscience and Education*, 17. †Authors contributed equally. <https://doi.org/10.1016/j.tine.2019.100113>
- Soylu, F.**, Rivera, B.*, Anchan, M.*, & Shannon, N. (2019). ERP differences in processing canonical and noncanonical finger-numeral configurations. *Neuroscience Letters*, 705, 74-79. <https://doi.org/10.1016/j.neulet.2019.04.032>
- Soylu, F.**, Seo, R., Newman, M., & Newman, S. D. (2019). Gray matter correlates of finger gnosis in children: A VBM Study. *Neuroscience*, 404, 82-90. <https://doi.org/10.1016/j.neuroscience.2019.01.032>
- Soylu, F.**, Lester, F., & Newman, S. (2018). You can count on your fingers: The role of fingers in early mathematical development. *Journal of Numerical Cognition*, 4(1), 107-135. <https://doi.org/10.5964/jnc.v4i1.85>

- Han, H., Lee, K., & **Soylu, F.** (2018). Simulating outcomes of interventions using a multipurpose simulation program based on the evolutionary causal matrices and Markov chain. *Knowledge and Information Systems*, 18(2), 223-227. <https://doi.org/10.1007/s10115-017-1151-0>
- Soylu, F.**, Raymond, D.R., Gutierrez, A.M., & Newman, S.D. (2018). The differential relationship between finger gnosis, and addition and subtraction: an fMRI study. *Journal of Numerical Cognition*, 3(3), 694–715. <https://doi.org/10.5964/jnc.v3i3.102>
- Mutlu, Y. & **Soylu, F.** (2018). Eğitsel sinirbilim ve bedenlenmiş biliş perspektifinden matematik öğrenme güçlüğü yaşayan öğrencilerde parmakla sayma [Finger counting habits of children with mathematics learning difficulty: An educational neuroscience perspective]. *Bilim, Eğitim ve Sanat Araştırmaları – Fen Bilimleri ve Matematik* [in Turkish]. Nobel Akademik Yayıncılık, Ankara. [Link to Chapter](#)
- Soylu, F.**, Holbert, N., Brady, C., & Wilensky, U. (2017). Embodied perspective taking in learning about complex systems. *Journal of Interactive Learning Research*. 28(3), 269-303. <https://www.learntechlib.org/primary/p/174886/>
- Han, H., Lee, K., & Soylu F. (2016). Predicting long-term outcomes of educational interventions using the evolutionary causal matrices and Markov chain. *Trends in Neuroscience and Education*, 5(4), 157–165. <https://doi.org/10.1016/j.tine.2016.11.003>
- Soylu, F.** (2016). An embodied approach to understanding: Making sense of the world throbnHugh simulated bodily activity. *Frontiers in Psychology*, 7:1914. <https://doi.org/10.3389/fpsyg.2016.01914>
- Soylu, F.**, Newman, S.D. (2016). Anatomically ordered tapping interferes more with one-digit addition than two-digit – A Dual-Task fMRI Study. *Cognitive Processing*. 17(1), 67–77. <https://doi.org/10.1007/s10339-015-0737-2>
- Brady, C., Holbert, N., **Soylu, F.**, Novak, M., & Wilensky, U. (2015). Sandboxes for model-based inquiry. *Journal of Science Education and Technology*, 24(2-3), 265-286. <https://doi.org/10.1007/s10956-014-9506-8>
- Newman, S.D., Soylu F. (2014). The impact of finger counting habits on arithmetic in adults and children. *Psychological Research*, 78(4), 549–56. <https://doi.org/10.1007/s00426-013-0505-9>
- Hickey, D.T., **Soylu, F.** (2012). Wikifolios, reflections, and exams for online engagement, understanding, and achievement. *Journal of Teaching and Learning with Technology*, 1(1), 64-71. <https://scholarworks.iu.edu/journals/index.php/jotlt/article/view/2045>
- Yalvac, B., Ayar, M. C., & **Soylu, F.** (2012). Teaching engineering with wikis. *International Journal of Engineering Education*, 28(3), 701. <https://ccl.northwestern.edu/2012/Soylu.pdf>
- Yalvac, B., **Soylu, F.**, & Arikan, A., (2011). Embodied cognition and education. *ETHOS: Dialogues in Philosophy and Social Science*, 4(1), 1-20. <http://ethosfelsefe.com/ethosdiyal-oglar/main/?page=read&id=78>
- Soylu, F.** (2009). Academics' views and uses of Wikipedia. *Gnovis Journal*, 9(2). <http://www.gnovisjournal.org/2009/05/13/academics-views-and-uses-wikipedia/>
- Soylu, F.** (2009). Designing online learning communities: Lessons from Eksisözlük. *European Journal of Open Distance and E-Learning*, 12(2), 1–10. <https://eric.ed.gov/?id=EJ911764>

Public Datasets

- Soylu, F.** (2019). Public dataset: ERP differences in processing canonical and noncanonical finger-numeral configurations, *Harvard Dataverse*. <https://doi.org/10.7910/DVN/BNNSRG>
- Soylu, F.** & Newman, S.D. (2019). Public Dataset – Gray Matter Correlates of Finger Gnosis in Children: a VBM Study, *Harvard Dataverse*. <https://doi.org/10.7910/DVN/F5Q24E>

Soylu, F. & Newman, S.D. (2017). Public Dataset: The Differential Relationship Between Finger Gnosis, and Addition and Subtraction: An fMRI Study, *Harvard Dataverse*. <https://doi.org/10.7910/DVN/I7KP3V>

Research Grants

- In-review “Racial Equity in Neuroscience: REiN” - NIH (R25)-National Institute of Neurological Disorders and Stroke - NINDS, Newman, S. (lead-PI), Kana, R. (PI), Payne-Foster, P. (PI), Salazar, T. (PI), & **Soylu, F. (PI)**, \$1,901,270.
- In-review “Entangled Multiphoton Quantum Polarimetric Sensing for Functional Neuroimaging: Fundamentals and Applications for Brain and Cognitive Sciences”- NSF Quantum Sensing Challenges for Transformational Advances in Quantum Systems (QuSeC-TAQS), Arauji, P. (PI), Crawford, C. (PI), Fedin, I. (PI), Gan, Y (PI), Gurbuz, S. (PI), Margaret, Kim. (PI), Patrick, K. (PI), Lukens, J., & **Soylu, F. (PI)**
- 2020-2022 "Acquisition of a 3.0 Tesla Magnetic Resonance Imaging Scanner" - National Science Foundation MRI (#2019120), Kana, R. (PI), Newman, S. (CO-PI), Conners, F. A. (CO-PI), Glenn, A. (CO-I), Han, H. (CO-I), Hudac, C. (CO-I), Malaia, E. (CO-I), McDonough, I. (CO-I), **Soylu, F.** (CO-I), & Suarez-Pellicioni, M. (CO-I). \$1,605,115. The University of Alabama. (September 1, 2020 - August 31, 2022).
- 2019-2021 “Brain pathways for perception-to-cognition in ASD: Reconciling divergent evidence from computational and emotional behavior” - Alabama Life Research Institute (ALRI) Pilot Project Program (Award #3-7R), PI: Evie Malaia, CO-PI: **Firat Soylu**, \$24,800
- 2018-2020 “Mathematical Processing Differences between Bilinguals and Monolinguals” - The University of Alabama Research Grants Committee (RGC), Level 1 Grant (Award # A19-0199-001), PI: **Firat Soylu**, \$6000
- 2015-2017 “The Embodiment of Number Processing: The Relation between Fingers and Numbers” - The University of Alabama Research Grants Committee (RGC), Level 1 Grant (Award # RGC-2015-49), PI: **Firat Soylu**, \$5950
- 2015-2017 “The use of mobile EEG and stationary EEG amplifiers in a pilot study focused on the impact of low current brain stimulation on math understanding and calculations” - Research Grants Committee (RGC), Level 3 Grant PI: Rick Houser, CO-PI: Steve Thoma, Research Scientist: **Firat Soylu**, \$225,000

Conference Presentations & Proceedings (*students)

- Soylu, F. (2023)**. *Moving Ahead with Embodied Cognitive Neuroscience*. Paper presentation at the Berlin Workshop on Ecological Psychology, Berlin, Germany: June 9, 2023
- Salehzadeh, R.*, **Soylu, F.** & Jalili, N. (2023). *Decoding ERP Scalp Distribution*. Poster presented at the 11th International IEEE EMBS Conference on Neural Engineering, Baltimore, MD: April 26, 2023
- Salehzadeh, R.* & **Soylu, F.** (2022). *Decoding ERPs for Number Gestures*. Poster presented at the 11th Alabama Advanced Imaging Consortium Retreat: August, 2022.
- Soylu, F.** (2021). *The challenges with embodied cognitive neuroscience*. Paper presented presented at the Philosophy and Neuroscience at the Gulf IV Fourth Annual Meeting of the Deep South Philosophy and Neuroscience Workgroup, Pensacola, FL: September 24, 2021.

- Anchan, M.*, Choi, Y.-J., & **Soylu, F.** (2021). *Adding marginalization, subtracting scores, multiplying inequities, dividing people: Low math performance predictors in English language learners*. Paper presented at the 89th Annual American Educational Research Association Conference, Orlando, FL: April, 2021. [virtual due to COVID19]
- Salehzadeh, R., **Soylu, F.**, & Jalili, N. (2021). Decoding ERPs for processing of canonical and non-canonical finger-numeral configurations. In Roesch, S. & Moeller, K., *Raising a Finger for Numbers*. Symposium for the 63rd TEAP (Tagung experimentell arbeitender Psychologen; Conference of Experimental Psychologists). Ulm, Baden-Württemberg, Germany: March, 2021. [virtual due to COVID19]
- Webber, W.B., **Soylu, F.**, & Burnham, J.J. (2020). *Using neuroscience to inform counseling: An EEG study of stereotyping*. Content session scheduled for the 2020 Conference of the Alabama Counseling Association. [virtual due to COVID19]
- Soylu, F.** (2020). *Developmental associations between the finger tactile and motor systems, and mathematical functions*. In Bahn Müller, J. & Barrocas, R., *Digits grasp digits: The interplay of fingers and numbers in early numerical learning*. Symposium for the 3rd Mathematical Cognition and Learning Society Conference, Dublin, Ireland: July, 2020. [virtual due to COVID19]
- Soylu, F.** & Suárez Pellicioni, M. (2020). *Gray Matter Correlates of Mathematical Fluency in Children*. The 3rd Mathematical Cognition and Learning Society Conference, Dublin, Ireland: July, 2020. [virtual due to COVID19]
- Anchan, M.*, Choi, Y., & **Soylu, F.** (2020). *Predictors of Math Performance: Language of Instruction, Gender, Math Preference, and Bullying*. The 3rd Mathematical Cognition and Learning Society Conference, Dublin, Ireland: July, 2020. [virtual due to COVID19]
- Rivera, B.*, **Soylu, F.**, Malaia, E. (2020). *Neural Bases of Numerical and Social Information Transfer in Autism Spectrum Disorder*. The 3rd Mathematical Cognition and Learning Society Conference, Dublin, Ireland: July, 2020. [virtual due to COVID19]
- Kim, J.*, Rivera, B.*, Anchan, B.*, & **Soylu, F.** (2019). *Gray Matter Correlates of Mathematical Fluency in Children*. Poster presented at the 8th Alabama Advanced Imaging Consortium Retreat: August, 2019.
- Soylu, F.**, Rivera, B.* Anchan, M.*, & Shannon, N.* (2019). *Testing the Motor Simulation Theory in Processing Canonical and Non-Canonical Finger Numeral Configurations*. The 2nd Mathematical Cognition and Learning Society Conference, Ottawa, Canada: June, 2019.
- Anchan, M.*, Rivera, B.*, Shannon, N.*, & **Soylu, F.** (2019). *Does It Add Up? Comparing Arithmetic Processing in Bilinguals and Monolinguals*. The 2nd Mathematical Cognition and Learning Society Conference, Ottawa, Canada: June, 2019.
- Rivera, B.* & **Soylu, F.** (2019). *The ERP effects of shared components in fraction comparisons*. The 2nd Mathematical Cognition and Learning Society Conference, Ottawa, Canada: June, 2019. Anchan, M.* & Soylu F. (2019). *Does It Add Up? Comparing Arithmetic Processing in Bilinguals and Monolinguals*. 26th Annual Cognitive Neuroscience Society Conference. San Francisco, CA, March 23-26, 2019.
- Rivera, B.*, & **Soylu, F.** (2018). *Semantic Processing in Fraction Comparison: An ERP Study*. Paper presentation at the 40th Annual Conference of the Cognitive Science Society. Madison, WI: July, 2018. <https://cogsci.mindmodeling.org/2018/papers/0448/0448.pdf>
- Anchan, M.* & **Soylu, F.** (2018). *Does it Add Up? Comparing Arithmetic Processing in Monolinguals and Bilinguals*. 59th Annual Meeting of the Psychonomic Society, New Orleans, LA: October, 2018.
- Rivera, B.*, & **Soylu, F.** (2018). *The Effects of Shared Components in Fraction Comparisons: Evidence From ERPs*. Poster presented at the 6th Biennial International Mind Brain and Education Conference. The University of Southern California, Los Angeles, CA: September, 2018.
- Soylu, F.**, Anchan, M.*, & Newman, S.D. (2018). *Sex differences in gray matter correlates of finger gnosis in children: a VBM study*. Poster presented at the 2018 Organization for the Study of Sex Differences Conference. Atlanta, GA.

- Soylu, F.**, Raymond, D.R., Gutierrez, A.M., & Newman, S.D. (2018). *The Relation between Finger Sense and Arithmetic: An fMRI Study of Children in Second and Third Grades*. Paper presented at the 2018 AERA (American Educational Research Association) Annual Meeting (SIG - Brain, Neurosciences, and Education). New York, NY: April, 2018
- Soylu, F.**, Gutierrez, A.M., Hanson, M., & Newman, S.D. (2018). *Effects of Structured Block Play on Arithmetic Processing: An fMRI Study*. Paper presented at the 2018 AERA (American Educational Research Association) Annual Meeting (SIG - Brain, Neurosciences, and Education). New York, NY: April, 2018
- Han, H., Thoma, S. & **Soylu, F.**, Lee, K. (2017). *How to make moral education more effective? From a brain study to policy making*. Paper presented at the 2017 AERA (American Educational Research Association) Annual Meeting. <https://eric.ed.gov/?id=ED591638>
- Rivera, B.*, Shannon, N., & **Soylu, F.** (2017). *ERP Markers for Number Gesture Processing*. Poster presented at the The National Diversity in STEM Conference. Salt Lake City, UT: October, 2017.
- Soylu, F.** & Yalvac, B. (2016). *Connecting levels of analysis in educational neuroscience*. Paper presented at the 2016 AERA (American Educational Research Association) Annual Meeting (SIG - Brain, Neurosciences, and Education). Washington, DC: April, 2016. <https://eric.ed.gov/?id=ED597274>
- Wagh, A., Novak, M., & **Soylu, F.** (2016). *Integrating agent-based modeling and case studies to learn about population dynamics: A design framework*. Paper presented at the 2016 National Association of Researchers of Science Teaching (NARST) Conference. Baltimore, MD: April, 2016.
- Irwin, A.*, Guyotte, K., **Soylu, F.**, & Houser, Rick. (2016). *Using neuroscience in educational research: A qualitative inquiry of ethics, power, and participation*. Paper presented at the Twelfth International Congress of Qualitative Inquiry. Champaign-Urbana, IL: May, 2016.
- Holbert, N., Brady, C., **Soylu, F.**, Novak, M., Wilensky, U. (2015). *The model gallery: supporting idea diffusion in computational modeling activities*. Paper presented at the 2015 AERA (American Educational Research Association) Annual Meeting (SIG - Advanced Technologies for Learning), Chicago, IL: April, 2015.
- Soylu, F.**, Brady, C., Holbert, N., Wilensky, U. (2014). *The thinking hand: Embodiment of tool use, social cognition and metaphorical thinking and implications for learning design*. Paper presented at the 2014 AERA (American Educational Research Association) Annual Meeting (SIG - Brain, Neurosciences, and Education), Philadelphia, PA: April, 2014. <https://pdfs.semanticscholar.org/0731/19d907e82fa84068f2f35810416927eef7bf.pdf>
- Soylu, F.** (2014). *Educational Neuroscience of Mathematical Cognition*. In Landy, D., Trninic, D., **Soylu, F.**, Kehoe, J., & Fishwick, P., The implications of embodiment for mathematics and computing education. Symposium conducted at the 36th Annual Conference of the Cognitive Science Society, Quebec City, Canada: July, 2014. <https://cogsci.mindmodeling.org/2014/papers/024/paper024.pdf>
- Soylu, F.** & Newman, S. (2012). *Shared use of neural resources between finger tapping and addition*. Poster presented at the Cognitive Neuroscience Society Conference, Chicago, IL: March, 2012.
- Hickey, D., Bishop S., **Soylu, F.** (2011). *Wikifolios, reflections, and exams for online engagement, understanding, and achievement*. Poster presented at the International Society for the Scholarship of Teaching and Learning (ISSOTL) Conference, Milwaukee, WI: October, 2011.
- Soylu, F.** & Newman, S. D. (2011). *Is arithmetic embodied? Differential interference of sequential finger tapping on addition during a dual-task paradigm*. Proceedings of the 33rd Annual Conference of the Cognitive Science Society. Austin, TX: July, 2011. <https://escholarship.org/content/qt2nb2087p/qt2nb2087p.pdf>
- Soylu, F.** (2011). *Mathematical cognition as embodied simulation*. Proceedings of the 33rd Annual Conference of the Cognitive Science Society. Austin, TX: July, 2011. <https://cogsci.mindmodeling.org>

org/2011/papers/0838/

- Soylu, F., Newman, S.** (2011). *Finger based representation of numbers: correlation between finger tapping ability and digit span*. Abstract for the 33th Annual Conference of the Cognitive Science Society, Boston, MA: July, 2011.
- Soylu, F., Soylu, M. and Davis, H.** (2010). *Relating embodiment and phenomenology to art experience*. Paper presented at the National Art Education Association Conference, Baltimore, MD: April, 2010.
- Millard, M., & **Soylu, F.** (2009). *An embodied approach for engaged interaction in ubiquitous computing*. In J. Jacko (Ed.), *Proceedings of the 13th International Human-Computer Interaction Conference*. (Vol. 5612, pp. 464-472). San Diego, CA: Springer Berlin Heidelberg. https://link.springer.com/chapter/10.1007/978-3-642-02580-8_51
- Soylu, F., and Millard, M.** (2009). *Use of embodied learning approaches in teaching technology*. Paper presented at the Association for Educational Communications and Technology (AECT) meeting, Louisville, KY: October, 2009.
- Millard, M., Hallett, K., van Leusen, P. and **Soylu, F.** (2009). *Online student course evaluation systems: Effective strategies and best practices*. Poster presented at the Association for Educational Communications and Technology (AECT) meeting, Louisville, KY: October, 2009.
- Soylu, F., and Yalvac, B.** (2009). *What does embodied cognition have to offer for science education?* Paper presented at the European Science Education Research Association (ESERA) Conference, Istanbul: August, 2009.
- Soylu, F.** (2008). *Academics' views on and uses of Wikipedia*. Paper presented at the 10th International Conference on Education, Athens: May, 2008.
- Soylu, F.** (2008). *Application of design principles of Eksisozluk to online learning communities*. Paper presented at the Harvard GSE Student Research Conference, Cambridge, MA: March, 2008.

Invited Talks

- Soylu, F.** (2023). *Decoding EEG Data Using Machine Learning*. Computer Science Seminar, Sabanci University, Istanbul, Turkey: June 16, 2023.
- Soylu, F.** (2023). *Brain, Body, and Learning: Insights from Neuroscience for Learning and Teaching*. Keynote address for the Brain Awareness Conference at the American University in Cairo (AUC), Cairo, Egypt: March 16, 2023.
- Soylu, F.** (2022). *The Arts and the Brain*. Alabama Arts Summit, Birmingham, AL: April 29, 2022
- Soylu, F.** (2022). *Bridging levels in neuroscience: What do we have to learn from cellular mechanisms in cognitive neuroscience?* Neurobiology Seminar Series, Heersink School of Medicine - UAB, Birmingham, AL: November 3, 2022
- Soylu, F.** (2021). *A Call for a New Cognitive Ontology in Numerical Cognition Research*. Virtual seminar for the Neuroimaging Journal Club, University of Alabama at Birmingham, Birmingham, AL: October 22, 2021.
- Soylu, F.** (2020). *Educational Neuroscience: Fundamental Theories and Findings*. Virtual seminar for the Professional Development Seminar Series, Inonu University, Malatya, Turkey: April, 2020.
- Soylu, F.** (2020). *Educational Neuroscience Research on Mathematical Cognition*. Cognitive Psychology Colloquium, The University of Alabama, Tuscaloosa, AL: March, 2020.
- Soylu, F.** (2019). *Embodied Cognition, Neuroscience, and Education*. Online guest lecture for the MSTU 4133: Cognition and Computers Course. Teacher's College, Columbia University: November, 2019.

- Soylu, F.** (2019). *Eğitimsel sinirbilim nedir ve neden gereklidir?* Trabzon University online guest lecture. Trabzon, Turkey: May, 2019.
- Soylu, F.** (2018). *What do educators need to know about neuroscience, brain development, and learning?* The University of Alabama Literacy Leadership Conference, Tuscaloosa, AL: August, 2018
- Soylu F.** (2018). *Mass Univariate Methods & Machine Learning Classification to Analyze ERP Data.* The 7th Alabama Advanced Imaging Consortium Retreat: July, 2018.
- Soylu, F.** (2018). *What is Educational Neuroscience & Why Now?.* Middle East Technical University School of Education Visiting Faculty Seminar, Ankara: June, 2018.
- Soylu, F.** (2018). *Bodily and evolutionary origins of numerical cognition: Why you can count on your fingers to do math.* Middle East Technical University, Cognitive Science Program Colloquium, Ankara: June, 2018.
- Soylu, F.** (2018). *Bodily and evolutionary origins of numerical cognition: Why you can count on your fingers to do math.* University of Alabama – Birmingham, Department of Psychology Colloquium Series, Birmingham: February, 2018.
- Soylu, F.** (2017). *Embodied Cognition, Neuroscience, and Education.* Online guest lecture for the MSTU 4133: Cognition and Computers Course. Teacher’s College, Columbia University: November, 2017.
- Soylu, F.** (2017). *Bodily origins of numerical cognition: The relation between bodily abilities and numerical skills during development,* Clinical Psychology Colloquium, Department of Psychology, The University of Alabama, Tuscaloosa: October, 2017.
- Soylu, F.** (2017). *The differential relationship between finger sense, and addition and subtraction: an fMRI study.* The 6th Alabama Advanced Imaging Consortium Retreat: July, 2017
- Soylu, F.** (2017). *Educational Neuroscience: Goals, methods and trends.* The University of Alabama Undergraduate Neuroscience Club, Tuscaloosa: February, 2017.
- Soylu, F.** (2016). *Bodily origins of numerical cognition: Why you can count on your fingers to do math.* Cognitive Science Colloquium Series, Department of Psychology, Mississippi State University, Starkville: April, 2016.
- Soylu, F.** (2016). *Bodily and evolutionary origins of numerical cognition.* Mind, Medicine, Brain and Culture meeting, Department of Anthropology, The University of Alabama, Tuscaloosa: February, 2016.
- Soylu, F.** (2016). *Participation of finger sensorimotor systems in mathematical cognition.* Neuroimaging Club Talk- University of Alabama, Birmingham: February, 2016.
- Soylu, F.** (2016). *Using Excel pivot charts & tables to make sense of complex data sets.* UA Faculty Resource Center, faculty technology showcase presentation: February, 2016.
- Soylu, F.** (2015). *Embodied cognition, Neuroscience, and Education.* Online guest lecture for the MSTU 4133: Cognition and Computers Course. Teacher’s College, Columbia University: November, 2015.
- Soylu, F.** (2015). *You can count on your fingers: How and why we use fingers for number processing.* Developmental Psychology Contemporary Issues, Psychology Department Weekly Colloquium. The University of Alabama, Tuscaloosa: April, 2015.
- Soylu, F.** (2014). *Contribution of executive and memory systems to symbolic learning in STEM.* Symposium conducted at the International Mind Brain Education Society (IMBES) Conference, Fort-Wayne, TX: November, 2014.
- Soylu, F.** (2014). *The promises, challenges and future of educational neuroscience.* Keynote address for the College of Education 6th Annual ESPRMC Graduate Symposium. The University of Alabama, Tuscaloosa: March, 2014.

Recent Courses Taught

The University of Alabama – Educational Psychology Program / Educational Neuroscience Concentration

- 2019– BEP 541 - Learning and Cognition
- 2014-2018 BEP 500 - Advanced Educational Psychology
- 2014– BEP 570 - Foundations of Educational Neuroscience
- 2014– BEP 670 - Research Methods and Trends in Educational Neuroscience
- 2020- BEP 490/675 - Cognitive Electrophysiology
- 2020- BEP 330/674 - Computational Methods in Cognitive Neuroscience

Awards & Fellowships

- 2016 UC-Davis ERP Boot Camp Attendance Award
- 2010 Cognitive Science Summer Research Fellowship, Indiana University
- 2010 The University Graduate School Doctoral Research Grant, Indiana University
- 2010 Achasa Beechler Dissertation Award, Indiana University
- 2010 Graduate Student Organization (GPSO) Research Award, Indiana University
- 2009 IST A.V. Summer Fellowship, Indiana University
- 2009 Achasa Beechler Dissertation Proposal Award, Indiana University
- 2004 Research Council of Norway Foreign Exchange Fellowship
- 2000-2002 Turkish Education Association Undergraduate Scholarship
- 1998-2002 Turkish Ministry of Education Full Undergraduate Fellowship

Graduate Students

PhD Dissertation Chair/Co-Chair

- 2017– Mona Anchan, UA Educational Psychology Program / Educational Neuroscience PhD Concentration, *“Mathematical Processing Differences between Bilinguals and Monolinguals”*
- 2016–2021 Brian Rivera, UA Educational Psychology Program / Educational Neuroscience PhD Concentration, *“Understanding Rational Number Processing and Its Role in the Foundations of Arithmetic Learning”*
- 2016-2020 Wesley Webber, UA Counseling and Mental Health Program, *“Stereotyping and Its Possible Association With Aspects of Mindfulness and Multicultural Counseling Competence in Graduate Students in Mental Health Fields”*

PhD Dissertation Committee Member

- 2021- Royya Salehzadeh, UA Mechanical Engineering, *“Electroencephalography-based Assessment of Human Physiological Safety in Human-Robot Interaction”*
- 2019-2022 Yun-Ruei Ku, UA Educational Psychology, *“Collocational Processing in English Monolinguals and Mandarin-English Bilinguals: Insights from Event-Related Potentials”*
- 2020–2022 Jiaqi Yu, UA Instructional Leadership, *“Exploring the Impacts of an Augmented Reality Mathematics Board Game that Trains Students’ Adaptive Number Knowledge”*
- 2019–2021 Kelsie Dawson, UA Educational Psychology / Educational Neuroscience PhD Concentration, *“Examining Moral Identity From Multiple Perspectives in Order to Promote Its Development”*
- 2016-2019 Erin O’Connor, UA Educational Psychology, *“Adult Literacy Learning: Perceptions and Motivations of Volunteer Tutors”*
- 2017-2019 Anne-Charlotte Souto, UA Department of Economics, Finance, and Legal Studies, *“The Distribution of Returns to Education”*

PhD Dissertation Examiner

- 2016 Polly K. Lai, The University of Sydney, Faculty of Education and Social Work, *“Learning Nanoscience from a Nanoparticle’s Perspective: A Computationally Embodied Learning Experience”*

MSc Thesis Committee Member

- 2022 Kristina Baggett, UA Psychology, *“Cross- Sectional Developmental Trajectory of Approximate Number System in Down Syndrome”*
- 2019 Jaimie Choi, UA Psychology Department, *“Aging Effects in Ambivalence”*

Professional Service

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- 2017- Steering Committee Member, Alabama Advanced Imaging Consortium
- 2021 Co-Organizer, Alabama Advanced Imaging Consortium Annual Conference
- 2019 Co-Organizer, Alabama Advanced Imaging Consortium Pre-Conference EEG/ERP Workshop
- 2018-2021 Associate Editor, Journal of Numerical Cognition

Proposal reviewer for the following grant programs:

- 2020,2021 Alabama Life Research Institute, Pilot Project Program
- 2020 Spencer Foundation, Small Grants Program
- 2020-22-23 Swiss National Science Foundation (Ad-hoc)
- 2020 NSF Graduate Research Fellowships Program (GRFP) Review Panel
- 2017,2018 US Department of Veteran Affairs, The Rehabilitation Research and Development Services - Spinal Cord Injury/Disorders and Neuropathic Pain Panel

- 2016 NSF EHR Cyberlearning Program Review Panel
- 2015 The Carnegie Trust for the Universities of Scotland

Ad-hoc reviewer for the following journals: American Educational Research Journal, Behavioural Brain Research, Brain Connectivity, Journal of Numerical Cognition, Journal of Learning and Individual Differences, PeerJ, Mind, Brain and Education, Neuropsychologia, Frontiers in Psychology, Cognitive Science, Journal of Cognition, Scientific Reports, Trends in Cognitive Sciences.

Regularly review proposals & papers for various conferences, including the Cognitive Science Society Conference, the AERA Conference – Brain Neuroscience Education SIG, and the International Society of the Learning Sciences Conference.

Departmental/University Service

- 2022 Member, Faculty Search Committee - Assistant Professor of Educational Psychology
- 2021- Steering Committee Member, UA MRI Research Facility
- 2023 Director, UA ALRI Neuroscience Theme
- 2021-2022 Chair, Departmental Review Committee, UA Biological Sciences
- 2021-2022 Member, UA University Strategic Plan Committee
- 2021 Member, Faculty Search Committee - Assistant Professor of Educational Psychology
- 2019 Chair, Faculty Search Committee - Assistant Professor of Educational Psychology & Educational Neuroscience
- 2020- Member, Graduate Council (Curriculum Committee)
- 2018-2019 Co-Chair, Faculty Search Committee - Assistant Professor of Educational Psychology & Educational Neuroscience Position
- 2018- Faculty Advisor, Association of Graduate Students in Educational Studies
- 2016-2017 Co-Chair, Faculty Search Committee - Assistant Professor of Educational Psychology & Educational Neuroscience Position
- 2016- Member, University of Alabama Evolution Working Group
- 2015-2016 Co-Chair, Faculty Search Committee - Assistant Professor of Educational Psychology & Educational Neuroscience Position
- 2014- Educational Neuroscience Initiative Co-Founder and Coordinator

Professional Memberships/Affiliation

- 2018- Mathematical Cognition and Learning Society
- 2014- IMBES (International Mind Brain and Education Society)
- 2012- AERA (American Educational Research Association)
- 2009- Cognitive Science Society

Media Appearances

- 2-20-2021 *NPR WHYY - The Pulse*. Interview segment (15:20-23:00) on how neuroscience informs learning and education, on an episode of the show focusing on science of learning. <https://whyy.org/episodes/the-science-of-schooling/>
- 1-10-2019 *Education Talk Radio*. Interview about the new educational neuroscience undergraduate major. <https://www.blogtalkradio.com/edutalk/2019/01/10/the-new-educational-neuroscience-undergrad-program-at-university-of-alabama>
- 12-4-2018 *WBRC - Fox 6 News*. Segment on Fox 6 News, featuring the new educational neuroscience undergraduate major, with a brief interview. https://twitter.com/DavidMiller_UA/status/1069985986556379136?s=20
- 11-26-2018 *Tuscaloosa News*. "UA to Launch State's First Educational Neuroscience Program." <https://www.ua.edu/news/2018/11/ua-to-launch-states-first-educational-neuroscience-program/>
- 3-25-2018 *Neuroscience News*. "This Many: Unlocking the Relationship Between Math Ability and Fingers." <https://neurosciencenews.com/math-fingers-8682/>
- 3-23-2018 *Medical Xpress*. "Researcher unlocking relationship between early math ability, fingers." <http://medicalxpress.com/news/2018-03-relationship-early-math-ability-fingers.html>
- 12-19-2016 *UA Educator*. "A Deeper Look into Learning". <http://www.ua.edu/news/2016/12/a-deeper-look-into-learning/>
- 4-17-2014 *The Crimson White*. "Firat Soylu to speak at annual graduate student symposium." <https://cw.ua.edu/19227/news/firat-soylu-to-speak-at-annual-graduate-student-symposium/>