

NELSON A. ROQUE

CURRICULUM VITAE

UCF, PSYCHOLOGY DEPARTMENT, 4111 PICTOR LANE, ORLANDO, FL
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CURRENT EMPLOYMENT

Assistant Professor, Psychology Department, Human Factors and Cognitive Psychology Program

University of Central Florida, Orlando, FL

Start: August 8th, 2020

PROFESSIONAL PREPARATION

PhD, Cognitive Psychology

Florida State University, Tallahassee, FL

Graduated: May 2018

MS, Cognitive Psychology

Florida State University, Tallahassee, FL

Graduated: August 2015

BS, Psychology

Florida State University, Tallahassee, FL

Graduated: April 2012, with Honors

POSTDOCTORAL TRAINING

NIA T32 Postdoctoral Fellow, July 2018 – June 2020

Pathways T32 Training Program. Center for Healthy Aging, Pennsylvania State University

GRANTS & OTHER RESEARCH SUPPORT

Roque, N.A., Sliwinski, M.J. Investigating Medication Errors in Daily Life: Discovering Person-specific and Situation-specific Risk Factors. R03 submitted to National Institute on Aging (Percentile: 9.0; Impact Score: 22; Summary Statement received; Award transferred to UCF).

Roque, N.A. Exploring the relationship between cognitive performance and in-the-moment glucose variability and excursions. Conditionally approved by Medtronic External Research Program.

PEER-REVIEWED PUBLICATIONS

Published

[2020]

Roque, N. A., & Boot, W. R. (2020). A New Tool for Assessing Older Adults' Wireless Network Proficiency: The Wireless Network Proficiency Questionnaire. *Journal of Applied Gerontology*, 0733464820935000.

Emihovich, B., **Roque, N.A.**, & Mason, J. (2020). Can Video Gameplay Improve Undergraduates' Problem-Solving Skills?. *International Journal of Game-Based Learning (IJGBL)*, 10(2), 21-38.

[2019]

Roque, N.A., Ram, N. (2019). tsfeaturex: An R Package for Automating Time Series Feature Extraction. *Journal of Open Source Software*, 4(37), 1279, <https://doi.org/10.21105/joss.01279>

Souders, D. J., Charness, N., **Roque, N. A.**, & Pham, H. (2019). Aging: Older Adults' Driving Behavior Using Longitudinal and Lateral Warning Systems. *Human factors*, 0018720819864510.

Dieciuc, M., **Roque, N.A.**, Boot, W.R. (2019). The Spatial Dynamics of Mouse-Tracking Reveal that Attention Capture is Stimulus-Driven Rather than Contingent upon Top-Down Goals. *Journal of Experimental Psychology: Human Perception & Psychophysics*.

Tinker, A., Fozard, J., Kearns, W., Mihailidis, A., Atoyebi, O., Bailey, A., Bet, P., Lapierre, N., Neubauer, N., **Roque, N.A.**, Vermeer, Y., Taipale, V. (2019). Twelve years of ISG masterclasses: Training the Future Leaders in Gerontechnology. *Gerontechnology*.

Yoon, J. S., **Roque, N. A.**, Andringa, R., Harrell, E. R., Lewis, K. G., Vitale, T., ... & Boot, W. R. (2019). Intervention Comparative Effectiveness for Adult Cognitive Training (ICE-ACT) Trial: Rationale, design, and baseline characteristics. *Contemporary clinical trials*.

[2018]

Wright, T. J., **Roque, N. A.**, Boot, W. R., & Stothart, C. (2018). Attention capture, processing speed, and inattentive blindness. *Acta Psychologica*, 190, 72-77.

Andringa, R., Boot, W.R., **Roque, N.A.**, & Ponnaluri, S. (2018). Hand proximity effects are fragile: a useful null result. *Cognitive Research: Principles and Implications*, 3(1), 7.

Boot, W.R., Moxley, J.H., **Roque, N.A.**, Andringa, R., Charness, N., Czaja, S. J., ... & Rogers, W.A. (2018). Exploring Older Adults' Video Game Use in the PRISM Computer System. *Innovation in Aging*, 2(1), igy009.

Multilab Direct Replication Team, including Boot, W.R., Andringa, R., **Roque, N.A.**, & Harrell, E.R. (2018). Registered replication report: Dijksterhuis & van Knippenberg (1998). *Perspectives on Psychological Science*, 1-38.

[2017]

Dieciuc, M., **Roque, N. A.**, & Folstein, J. R. (2017). Changing similarity: Stable and flexible modulations of psychological dimensions. *Brain Research*, 1670, 208-219.

Souders, D. J., Boot, W. R., Blocker, K., Vitale, T., **Roque, N. A.**, & Charness, N. (2017). Evidence for narrow transfer after short-term cognitive training in older adults. *Frontiers in Aging Neuroscience*, 9.

[2016]

Roque, N.A., Boot, W.R. (2016). A new tool for assessing mobile device proficiency in older adults: The Mobile Device Proficiency Questionnaire. *Journal of Applied Gerontology*. doi: 10.1177/0733464816642582.

Roque, N.A., Wright T.J, Boot, W.R. (2016). Do different attention capture paradigms measure different types of capture? *Attention, Perception, and Psychophysics*, 78(7), 2014-2030. doi: 10.3758/s13414-016-1117-4

[2015]

Roque, N.A., & Boot, W. R. (2015). Exploring the relationship between object realism and object-based attention effects. *Acta Psychologica*, 160, 178-183. doi: 10.1016/j.actpsy.2015.07.014.

Accepted

Boot, W., Andringa, R., Harrell, E., Dieciuc, M.A., **Roque, N.A.** (accepted). Older Adults and Video Gaming for Leisure: Lessons from the Center for Research and Education on Aging and Technology Enhancement (CREATE). *Gerontechnology*.

In Revision

Roque, N.A., Boot, W.R. (in revision). Reliably measuring attention capture: Challenges and new approaches. *Acta Psychologica*.

Roque, N.A., Harrell, E., Wright, T.J., Boot, W.R. (in revision). Proposing visual search as a paradigm to study medication errors. *PLOS ONE*.

Mason, J., Tenenbaum, G., Jaime, S., **Roque, N.A.**, Maharaaj, A., Figueroa, A. (in revision). Impact of arterial stiffness, cardiorespiratory fitness, and acute aerobic exercise on cognitive function in older adults. *Experimental Gerontology*.

Lebeau, J.C., Mason, J., **Roque, N.A.**, Tenenbaum, G. (in revision). The Effects of Acute Exercise on Driving Performance and Executive Functions in Healthy Older Adults. *International Journal of Sport and Exercise Psychology*.

Submitted

Yang, C.H., Hakun, J.G., **Roque, N.A.**, Sliwinski, M., Conroy, D. Preliminary Efficacy of A Mindful Walking Program for Improving Objective and Subjective Cognitive Function in Older Adults. *Journal of Aging and Physical Activity*.

In Preparation

Roque, N.A., Sliwinski, M., Pincus, A., Conroy, D., Ram, N. (in preparation). Questionnaire-based Everyday Response Time (q*bert): A Low-Cost, Low-Burden Measure of Processing Speed and Cognitive Performance.

Wood, M. D., Harrell, E. H, Cegan, J. C., **Roque, N. A.**, Armijo, A., Brunye, T. T., Beeler, D., Linkov, I. (in preparation). A decision analysis approach to modeling route planning.

OTHER PUBLICATIONS

Book Chapters

Roque, N.A., Boot, W.R. (2017). Cognitive Aging. *International Handbook of Positive Aging*. London and New York: Routledge.

Roque, N.A., Boot, W.R. (2018). Action Video Games *DO NOT* Promote Visual Attention. *Video Game Influences on Aggression, Cognition, and Attention*.

Technical Reports

Charness, N., Boot, W.R., Kaschak, M., Arpan, L., Cortese, J., Clayton, R., Stothart, C., **Roque, N.A.**, Paedae, B., & Barajas, K. (2017). Human Factors Guidelines to Develop Educational Tip Cards for Aging Road Users. Florida Dept. of Transportation Technical Report.

Boot, W.R., Charness, N., Mitchum, A., **Roque, N.A.**, Stothart, C., & Barajas, K. (2015). Driving Simulator Studies of the Effectiveness of Countermeasures to Prevent Wrong-Way Crashes. Florida Dept. of Transportation Technical Report.

Boot, W.R., Charness, N., **Roque, N.A.**, Barajas, K., Dirghalli, J., & Mitchum, A. (2015). The Flashing Right Turn Signal with Pedestrian Indication: Human Factors Studies to Understand the Potential of a New Signal to Increase Awareness of and Attention to Crossing Pedestrians. Florida Dept. of Transportation Technical Report.

Conference Proceedings

Boot, W. R., Souders, D., Charness, N., Blocker, K., **Roque, N. A.**, & Vitale, T. (2016). The gamification of cognitive training: Older adults' perceptions of and attitudes toward digital game-based interventions. In Human Aspects of IT for the Aged Population. Design for Aging (pp. 290-300). Springer International Publishing.

Roque, N. A., Boot, W. R., Charness, N., Barajas, K., Dirghalli, J., & Mitchum, A. (2016). The Flashing Right Turn Signal with Pedestrian Indication: A human factors study to assess driver comprehension. In *Human Aspects of IT for the Aged Population. Healthy and Active Aging* (pp. 417-427). Springer International Publisher.

Conference Abstracts

Sliwinski, M. J., Hakun, J. G., **Roque, N.**, Katz, M. J., Zhaoyang, R., & Lipton, R. B. (2019). Intensive ambulatory cognitive assessments in older adults: sensitivity to cognitive risk status in the Einstein Aging Study (EAS). *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*, 15(7), P355-P356.

Roque, N., Ram, N., & Ong, A. (2019, January). Predicting health outcomes from time series features of affect dynamics: a machine learning approach. In *Psychotherapy and Psychosomatics* (vol. 88, pp. 110-110). Allschwilerstrasse 10, CH-4009 Basel, Switzerland: Karger.

Ong, A., **Roque, N.**, & Ram, N. (2019, January). Fragile positive affect and systemic inflammation. In *Psychotherapy and Psychosomatics* (Vol. 88, pp. 100-100). Allschwilerstrasse 10, CH-4009 Basel, Switzerland: Karger.

AWARDS & HONORS

2017 Mark & Gloria Charness Cognitive Science Award: April 2017

2016 ASAP (Accessibility and Safety for an Aging Population) Doctoral Fellow Award: November 2016

2015, 2016, 2017 Leslie N. Wilson-Delores Auzenne Assistantship: August 2015 - Present

2014 NIMH Summer Institute in Cognitive Neuroscience Fellowship, University of California at Santa Barbara: June 23rd - July 4th, 2014

CONFERENCE PRESENTATIONS

Symposium

Using Mobile Technology to Elucidate Psychosocial and Cognitive Function in Older Adults. Gerontological Society of America, 2019 Annual Meeting. November 17th, 2019. – *Symposium Organizer; accepted*

Increasing the Precision of Measuring Cognitive Function in Older Adults using Mobile Technologies. Cognitive Aging Conference, 2020 Annual Meeting. – *Symposium Organizer; proposed*

Oral Presentations

Roque, N., Ram, N., & Ong, A. (2019, January). Predicting health outcomes from time series features of affect dynamics: a machine learning approach. Presentation for Bi-Annual World Congress Meeting of the International College of Psychosomatic Medicine (ICPM), Florence, Italy.

Mason, J., Jaime, S., **Roque, N.A.**, Maharaj, A., Tenenbaum, G., & Figueroa, A. The effects of an acute bout of aerobic exercise on cognitive function in older adults. Presentation for Annual Meeting of the American College of Sports Medicine (ACSM), Orlando, FL. – *Oral presentation delivered by Mason, J.*

Roque, N.A., Boot, W.R. (2018, May). The Development and Validation of the Mobile Device Proficiency Questionnaire in U.S. Samples. Presented at the 2018 Annual Meeting of the International Society for Gerontechnology. St. Petersburg, FL. – *Oral*

Souders, D.J., Charness, N., **Roque, N.A.**, Pham, H. (2018, April). Do Advanced Driver Assistance Systems (ADAS) improve older driver performance? Presented at SUNY Stony Brook, Smart and Connected Community Conference. New York. – *Oral*

Roque, N.A., Boot, W.R., Charness, N., Barajas, K., Dirghalli, J., Mitchum, A. (2016, July). Exploring the Comprehension of a New Traffic Signal to Promote the Safety and Awareness of Pedestrians. Presented at Human Computer Interaction International (HCII). Toronto. – *Oral*

Posters

Gallyer, A.J., **Roque, N.A.**, (submitted). An Experimental Test of the Roles of Perceived Burdensomeness and Thwarted Belongingness in Self-Injurious Behavior: A Pilot Study. *Suicidology*. – *Poster*

Roque N.A., Boot, W.R., (2018, November). A New Scale for Assessing Older Adults' Wireless Network Proficiency: The Wireless Network Proficiency Questionnaire. To be presented at the Annual Scientific Meeting of the Gerontological Society of America (GSA). Boston, MA.

Lebeau, J.C., Mason, J., **Roque, N.A.**, Razon, S., & Tenenbaum, G. (2018, June). The Effects of Acute Exercise on Driving Performance and Executive Functions in Healthy Older Adults. Presented at North American Society for Psychology of Sport and Physical Activity's 51st Annual Meeting in Denver, Colorado.

Mason, J., **Roque N.A.**, Maharaj A., Salvador, J., Figueroa, A. (2018, June). Exploring the effects of life-long aerobic exercise on cognitive function, driving performance, and cardiovascular health. Posted presented at American College of Sports Medicine's 65th Annual Meeting in Minneapolis, Minnesota.

Roque N.A., Boot, W.R., (2018, May). Pupillometry as a window into the content and strength of attention sets. Presented at the 18th Annual Meeting of the Vision Sciences Society. St. Petersburg Beach, FL.

Dieciuc, M., **Roque N.A.**, Boot, W.R., (2018, May). Capturing the response dynamics of attention capture with mouse tracking. Presented at the 18th Annual Meeting of the Vision Sciences Society. St. Petersburg Beach, FL.

Andringa, R., **Roque N.A.**, Boot, W.R., (2018, May). Exploring the Effect of Task Complexity, Presentation, and Input Device on the Near-Hands Advantage. Presented at the 18th Annual Meeting of the Vision Sciences Society. St. Petersburg Beach, FL.

Roque N.A., Harrell, E., Wright, T.J., Boot, W.R., (2018, May). Exploring Visual Search as a Paradigm for Predicting Medication Errors. Presented at Cognitive Aging Conference 2018. Atlanta, GA.

Ospina J., Yazbec, A., **Roque, N.A.**, Borovsky, A. (2017, April). Pupillometry measures highlight the timing of cognitive effort during linguistic adaptation. Presented at CUNY 2017 Conference on Human Sentence Processing.

Roque N.A., Wright T.J., Boot W.R. (2016, May) Do different attention capture paradigms measure different types of capture? Presented at the 16th Annual Meeting of the Vision Sciences Society. St. Petersburg Beach, FL.

Roque N.A., Boot W.R. (2016, April) Mobile Device Proficiency Questionnaire (MDPQ): Assessing mobile smart device proficiency among seniors. Presented at Cognitive Aging Conference 2016. Atlanta, GA.

Roque N.A., Boot W.R. (2015, November) Do Different Attention Capture Paradigms Measure Different Types of Capture?. Presented at the 23rd Object Perception, Attention and Memory Workshop. Chicago, IL.

Roque N.A., Wright T.J., Boot W.R. (2015, May) Exploring Visual Search as a Paradigm to Study Medication Errors. Presented at the 15th Annual Meeting of the Vision Sciences Society. St. Petersburg Beach, FL.

Roque N.A., Boot, W.R. (2014, May) Exploring the Relationship between Object-Based Attention Effects and Object Realism. Poster presented at the 14th Annual Meeting of the Vision Sciences Society. St. Petersburg Beach, FL.

Driscoll K.A., Johnson S.B., Gill E., Pizzi A., **Roque N.A.**, Sorrentino E., ... (2012, August) "Grading" Type 1 Diabetes Knowledge: How Well Do Children and Parents Perform? Presented at the 120th Annual Convention of the American Psychological Association. Orlando, FL.

UNIVERSITY PRESENTATIONS

Roque N.A. (2019, November). Using Model-Based Cluster Analyses of Cognitive Performance to Unpack Differences in Psychosocial Risk Factors. Presentation for Pennsylvania State University's Center for Health Aging, Aging SIG. – *Oral*

Roque N.A. (2018, March). tsfeaturex: Automating the Extraction of Time Series Features. Presentation for Pennsylvania State University's QuantDev Brown Bag Lecture Series. – *Oral*

Roque N.A. (2018, April). Reliably measuring attention capture: Challenges and new approaches. Presentation for FSU Psychology's Graduate Research Day. – *Oral*

Roque N.A. (2017, April). Exploring visual search as a paradigm for predicting medication errors. Presentation for FSU Psychology's Graduate Research Day. – *Oral*

Roque N.A. (2016, April). Do different attention capture paradigms measure different types of capture? Presentation for FSU Psychology's Graduate Research Day. – *Oral*

Roque N.A. (2016, March). Exploring visual search as a paradigm for studying medication errors. Research sharing luncheon held by the FSU Fellows Society. – *Oral*

TEACHING EXPERIENCES

Courses taught

PSB2000 – Brain & Behavior: Fall 2016 | 220 students

Python Programming + Open Source Experiment Building Workshop (Co-Lecturer): June 2014 – July 2014

Education & Preparation

FSU Psychology Department Teaching Practicum, January 2016 - May 2016

Supervisors: Dr. Orenda Johnson, Dr. Justin Moss

Guest Lectures

PSB2000, Brain & Behavior | Instructor: Dr. Orenda Johnson | 12/1/16

PSB2000, Brain & Behavior | Instructor: Dr. Briana Carroll | 11/14/16

EXP3202, Research Methods | Instructor: Dr. Jonathan Folstein | 3/24/16

PROFESSIONAL EXPERIENCES

Lead Software Developer: Institute for Successful Longevity, May 2015 – May 2018

Designed, developed, and maintained the source code for the ISL participant registry, used by researchers and participants alike for engaging volunteers in ongoing research at Florida State.

Supervisor: Dr. Neil Charness, Director of ISL

Lead Software Developer: Anxiety & Behavioral Health Clinic: June 2013 – May 2018

Developed online diagnostic task to assess the severity of anxiety and depression symptoms, as well as a mobile-friendly web application for intervention delivery and data tracking.

Project Coordinator: Dr. Norman Schmidt

Lead Software Developer: Laboratory for the Study and Prevention of Suicide-Related Conditions and Behaviors, October 2013 – December 2016

Designed and developed a laboratory diagnostic tool and tasks for online data collection

Project Coordinators: Matthew Podlogar, Dr. Caroline Silva, & Dr. Thomas Joiner

PEER REVIEW EXPERIENCE

Applied Ergonomics
Journal of Applied Gerontology
Journal of Medical Internet Research (JMIR)
Journal of Medical Internet Research (JMIR) Serious Games
Journal of Experimental Psychology: Applied
Journal of Gerontology: Psychological Sciences
International Journal of Psychophysiology
Journal of Visualized Experiments (JoVE)

SERVICE

Service to Profession

Conference Abstract Reviewer, APA Division 20, December 2019

Student Grant Reviewer, Penn State, Kinesiology, May 2019

Graduate Student Representative: APA Division 20, September 2014 – February 2016

Developed: strategies to increase membership, created content for the newsletter (published three times per year), as well as organized social gatherings for Division 20 members at conferences

Poster Judge, APA Division 20 Poster Session, August 6-9th, 2015

Assisted in judging poster presentations as part of APA's Division 20 (Adult Development & Aging) poster session.

Community Outreach

Judge, Capital Regional Science and Engineering Fair, February 6th, 2018

Assisted in judging poster presentations for several students from the Capital Region area and deciding on a final winner.

President, Tallahassee Apple Users Group Inc. 501(c)(3) non-profit, December 2017 – May 2018

Lead of organization, including developing community partnerships, delivering presentations related to technology.

Vice President, Tallahassee Apple Users Group Inc. 501(c)(3) non-profit, December 2016 – December 2017

Create and deliver presentations related to technology in all domains, in addition to organizing and maintaining the website

Judge, Capital Regional Science and Engineering Fair, February 13th, 2015

Assisted in judging poster presentations for several students from the Capital Region area and deciding on a final winner.

MEMBERSHIPS

Member, American Psychological Association - Division 20 (Adult Development and Aging), Division 21 (Applied Experimental and Engineering Psychology), and Division 38 (Society for Health Psychology)

Member, Gerontological Society of America

Member, Psi Chi International Honor Society in Psychology

TECHNOLOGY SKILLS

Computing

Proficient with Windows, Mac OS X, and Linux systems, including terminal/console knowledge

Proficient with Microsoft Office Suite

Design

Proficient with Adobe Photoshop, Illustrator, InDesign, Dreamweaver

Programming

Proficient in the following programming languages: R, Python, MATLAB, TCL, C++

Proficient in the development of web applications, using: React Native, HTML, CSS, PHP, Javascript, jQuery

Proficient in the following database languages: MYSQL, PostgreSQL, Firebase/Firestore

Programming Library Development

Automating time-series feature extraction: <https://github.com/nelsonroque/tsfeaturex>

Binding contextual data to geospatial datasets: <https://github.com/nelsonroque/contextR>

Useful data preparation and management utilities: <https://github.com/nelsonroque/ruf>

Data Science & Statistics

Data processing & Statistical analysis experience with R, SPSS, & Python

Machine learning (supervised and unsupervised methods) for prediction (i.e. Neural Networks, LSTM, kNN, multinomial regression, decision trees)

Text mining, sentiment analysis, and topic modeling

Accessing data from API endpoints (e.g., Census, weather, air quality)

Experimental Design

Development of EEG experiments using MATLAB's Psychtoolbox and PsychoPy (data analysis in MATLAB)

Development of eye-tracking experiments using the SR-Research Eyelink 1000 & SMI Head mounted eye-tracker (with data analysis experience in Perl, Python, R)

Creation of driving simulator scenarios for use on the NADS MiniSim and DriveSafety simulators (with data analysis experience in MATLAB, Python, R)

Creation of shooting simulator scenarios for use on the Vitra simulator

Custom experiments for use on the web and mobile devices

Conducting experiments on Amazon's Mechanical Turk service

Experience creating custom Qualtrics experiments using Javascript API

Creation of online learning management system, with data collection

Creation of telephone key-prompt menu and automating the sending of reminder text messages via Python and Twilio

Software + Hardware Interfacing

Experience reading remote sensor data (i.e. ultrasonic distance, camera stream), using Arduino/Raspberry Pi

Experience interfacing the NADS MiniSim with Twilio for outbound phone calls and text messages, using Python

LANGUAGE SKILLS

Native proficiency in English and Spanish