Curriculum Vitae

Postdoctoral Research Associate, Princeton University mpagan@princeton.edu

Education and Training

2003-2006 **University of Pisa**, Pisa, Italy
Laurea (B.S.) in Computer Engineering (110/110 cum laude)
Advisors: Dr. Bruno Codenotti, Dr. Massimo Pappalardo
Thesis title: *An analysis of the Lemke-Howson algorithm for the computation of Nash equilibria in bimatrix games*

2006-2009 **University of Pisa**, Pisa, Italy
Laurea Specialistica (M.S.) in Control Engineering (110/110 cum laude)
Advisors: Dr. Alberto Landi, Dr. Andrea Caiti, Dr. Davide Zoccolan, Dr. James DiCarlo
Thesis title: *Study of a biologically inspired model for visual object recognition*

2003-2009 **Scuola Superiore Sant'Anna**, Pisa, Italy
Diploma in Engineering (100/100 cum laude)

2007-2008 **Massachusetts Institute of Technology**, Cambridge, MA
Research visiting student
Advisors: Dr. James DiCarlo, Dr. Nicole Rust, Dr. Davide Zoccolan

2009-2014 **University of Pennsylvania**, Philadelphia, PA
Ph.D. in Neuroscience
Advisor: Dr. Nicole Rust
Dissertation title: *The neural mechanisms underlying visual target search*

2015-present **Princeton University**, Princeton, NJ
Postdoctoral research in the laboratory of Dr. Carlos Brody

Grants

2016-2019 Simons Collaboration on the Global Brain (SCGB) Postdoctoral Fellowship
"Neural mechanisms underlying flexible decision-making"

2021-2022 NIMH R21 Grant (Carlos Brody, Marino Pagan)
"Experimental platform to investigate the neural mechanisms underlying flexible decision-making"

2021 Simons Foundation Autism Research Initiative (SFARI) Bridge To Independence (BTI) Award
"High-throughput dissection of the neural mechanisms underlying cognitive inflexibility in autism"
$495,000 over three years, activated upon assumption of a tenure-track research professorship

Honors and Awards

2003-2009 Full Scholarship (room and board) for the full duration of undergraduate studies as a winner of nationwide competition (1st out of 312 applicants), Scuola Superiore Sant'Anna
2012 Best oral presentation at BGSA Symposium, University of Pennsylvania
2012 Jameson-Hurvich Travel Award, University of Pennsylvania
2012 Admission to Computational Vision course, Cold Spring Harbor Laboratory
2013 Presenter's Travel Grant, CoSyNe
2020 Selected Speaker for NeuroLaunchpad Seminar Series

Teaching experience

2011 Teaching Assistant for *Cellular Neurobiology* (BBB251), University of Pennsylvania
2016-2021 Mentorship of graduate and undergraduate students in the Brody Lab, Princeton University

Publications

Codenotti, B., De Rossi, S.M., **Pagan, M.** (2008). An experimental analysis of Lemke-Howson algorithm. *arXiv*:0811.3247

Baldassi, C.*, Alemi-Neissi, A.*, **Pagan, M.***, DiCarlo, J.J., Zecchina, R., Zoccolan, D. (2013). Shape similarity, better than semantic membership, accounts for the structure of visual object representations in a population of monkey inferotemporal neurons. *PLoS Computational Biology*. 9 (8), e1003167 (PMCID3738466) *co-first author

Pagan, M., Urban, L.S., Wohl, M.P., Rust, N.C. (2013). Signals in inferotemporal and perirhinal cortex suggest an untangling of visual target information. *Nature Neuroscience*. 16 (8), 1132-1139 (PMCID3725208)

Pagan, M., Rust, N.C. (2014). Quantifying the signals contained in heterogeneous neural responses and determining their relationships with task performance. *Journal of Neurophysiology*. 112 (6), 1584-1598 (PMCID4137243)

Pagan, M., Rust N.C. (2014). Dynamic target match signals in perirhinal cortex can be explained by instantaneous computations that act on dynamic input from inferotemporal cortex, *Journal of Neuroscience.* 34 (33), 11067-11084 (PMCID4131017)

Pagan, M., Simoncelli E.P., Rust N.C. (2016). Neural Quadratic Discriminant Analysis: Nonlinear Decoding with V1-Like Computation, *Neural Computation.* 28 (11), 2291-2319 (PMCID6395528)

Duan, C.A.*, **Pagan, M.***, Piet, A.T.*, Kopec, C.D., Akrami, A., Riordan, A.J., Erlich, J.C., Brody, C.D. (2021) Collicular circuits for flexible sensorimotor routing, *Nature Neuroscience.* 24 (8), 1110-1120 (PMCID34083787) *co-first author

Pagan, M., Tang, V., Aoi, M.C., Pillow, J.W., Mante, V., Sussillo, D., Brody, C.D. A new theoretical framework jointly explains behavioral and neural variability across subjects performing flexible decision-making

Selected meetings and presentations

2011 From luminance to semantics: how images of natural objects are represented in IT cortex. *CoSyNe*
2012 The neural mechanisms involved in finding specific objects and switching between targets, *CoSyNe*
2013 Visual target signals are computed via a dynamic “and-like” mechanism in IT and PRh cortex, *CoSyNe*
2014 Maximum Variance Differentiation (MVD) explains the transformation from IT to PRh cortex, *CoSyNe*
2016 A collicular mechanism for flexible sensorimotor gating during task switching, *CoSyNe*
2016 Neural mechanisms underlying flexible decision-making, *SCGB Annual Meeting* (invited talk)
2017 Flexible decision-making in rats, *CoSyNe*
2018 Flexible feature selection for decision-making in rats, *SCGB Annual Meeting*
2019 Representations and causal contributions of frontal cortex during flexible decision-making, *CoSyNe*
2019 Neural mechanisms underlying flexible decision-making, *PNI In-house seminar* (invited talk)
2019 Representations and causal contributions of frontal cortex during context-dependent evidence accumulation, *SCGB Annual Meeting*
2020 Heterogeneous recurrent mechanisms underlying context-dependent computation in rats, *CoSyNe*
2020 Individual variability in the neural mechanisms underlying context-dependent decision-making, *PNI In-house seminar* (invited talk)
2020 Individual variability in the neural mechanisms underlying context-dependent decision-making, *NeuroLaunchpad Seminar series* (invited talk)
2020 Individual variability in the neural mechanisms underlying context-dependent decision-making, *HHMI Cognitive and Systems Neuroscience meeting*
2021 Individual variability of neural mechanisms underlying flexible decision-making, *CoSyNe*
2021 High-throughput electrophysiology and optogenetics in freely-moving rats performing cognitive tasks, *IEEE NER 2021*
2022 Neural sources of individual variability in cognitive behavior, *SCGB Annual Meeting*
2022 High-throughput characterization of cognitive flexibility in rat models of autism, *SFARI Annual Meeting*
2022 Flexible decision-making in rat models of autism, *SFARI Autism Rat Consortium Meeting* (invited talk)