Cyrus Omar

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Education

Carnegie Mellon University

Ph.D. in Computer Science (2010-present, expected Spring 2017)

Advisor: Jonathan Aldrich

Thesis: *Reasonably Programmable Syntax*

Center for the Neural Basis of Cognition

Graduate Training Program (2010-present)

PhD Program in Neural Computation (2008-2010)

University of Illinois at Urbana-Champaign

B.S. in Computer Science, *summa cum laude*, 2008

B.S. in Molecular & Cellular Biology, *summa cum laude*, 2008

GPA: 3.99 / 4.00

Research

Research Interests: Adaptable and intelligent programming languages and programming environments.

Peer-Reviewed Full Papers

1. Hazelnut: A Bidirectionally Typed Structure Editor Calculus

   C. Omar, I. Voysey, M. Hilton, J. Aldrich and M. Hammer

   44th ACM SIGPLAN Symposium on Principles of Programming Languages ***(POPL 2017)***

2. Programmable Semantic Fragments: The Design and Implementation of `typy`

   C. Omar and J. Aldrich.

   15th ACM SIGPLAN International Conference on Generative Programming: Concepts & Experiences ***(GPCE 2016)***

3. Safely Composable Type-Specific Languages

   C. Omar, D. Kurilova, L. Nistor, B. Chung, A. Potanin and J. Aldrich.

   28th European Conference on Object-Oriented Programming ***(ECOOP 2014)***

   Distinguished Paper Award

4. Active Code Completion.

   C. Omar, Y. Yoon, T. D. LaToza and B. A. Myers

   45th International Conference on Software Engineering ***(ICSE 2012)***

5. Neural correlation is stimulus modulated by feedforward inhibitory circuitry
   J. W. Middleton, C. Omar, B. Doiron and D. J. Simons
   Journal of Neuroscience 32(2):506–18 ***(J. Neurosci. 2012)***
6. A Feedback Information-Theoretic Approach to the Design of Brain-Computer Interfaces.
   C. Omar, A. Akce, M. Johnson, T. Bretl, R. Ma, E. Maclin, M. McCormick and T. Coleman
   International Journal of Human-Computer Interaction, 27:1, 5–23 ***(IJHCI 2011)***

Peer-Reviewed Short Papers

7. Composable and Hygienic Typed Syntax Macros
   C. Omar, C. Wang and J. Aldrich
   30th ACM Symposium on Applied Computing ***(SAC 2015)***
8. Statically Typed String Sanitation Inside a Python
   N. Fulton, C. Omar and J. Aldrich
   1st International Workshop on Privacy and Security in Programming ***(PSP 2014)***
   Best Paper Award
9. Collaborative Infrastructure for Test-Driven Scientific Model Validation
   C. Omar, J. Aldrich and R. Gerkin
   47th International Conference on Software Engineering ***(ICSE 2014)***
   New Ideas & Emerging Results Track (18% acceptance rate)
10. Language-Based Architectural Control
    J. Aldrich, C. Omar, A. Potanin and D. Li
    6th International Workshop on Aliasing, Capabilities and Ownership ***(IWACO 2014)***
11. Type-Directed, Whitespace-Delimited Parsing for Embedded DSLs
    C. Omar, B. Chung, D. Kurilova, A. Potanin and J. Aldrich
    2013 International Workshop on the Globalization of Domain-Specific Languages ***(GlobalDSL 2013)***
12. Policies for neural prosthetic control: initial experiments with a text interface
    C. Omar, M. Johnson, T. Bretl and T. Coleman
    2008 American Control Conference ***(ACC 2008)***
13. Querying the user properly for high-performance brain machine interfaces: recursive estimation, control and feedback information theoretic perspectives
    C. Omar, M. Johnson, T. Bretl and T. Coleman
    2008 IEEE International Conference on Acoustics, Speech, and Signal Processing ***(ICASSP 2008)***
14. Shedding the weights: more with less
    T. Achler, C. Omar and E. Amir
    2008 International Joint Conference on Neural Networks ***(IJCNN 2008)***

Working Drafts

15. Reasonably Programmable Syntax
    C. Omar and J. Aldrich
    Dissertation and accompanying journal paper in preparation
    2nd Place, ICFP 2015 Graduate Student Research Competition
16. Hazelnut Live: Semantic Foundations for Evaluating Incomplete Programs
    C. Omar, I. Voysey, M. Hilton, J. Aldrich and M. Hammer
17. Statistical Models of Typed Syntax Trees
    C. Omar, S. Joshi and F. Cruz
    3rd Place, SPLASH 2014 Graduate Student Research Competition
18. Tidy: A Modularly Programmable Bidirectionally Typed Translation Semantics
    C. Omar and J. Aldrich

Internships

Los Alamos National Lab

Synthetic Cognition Group (May-August 2010)
Advisor: Garrett Kenyon

Teaching

Carnegie Mellon University

Principles of Programming Languages (15-312)
Head TA, Spring 2013 with Prof. R. Harper

Functional Programming (15-150)
Head TA, Fall 2011 with Prof. D. Licata

Service

1. Publicity Chair and Program Committee, GPCE 2017
2. Program Committee, DSLDI 2015
3. Artifact Evaluation Committee, ECOOP 2015
4. CSD Graduate Admissions Committee, 2013
5. CNBC Social Committee, 2011

Fellowships & Individual Awards

1. Alan J. Perlis Graduate Student Teaching Award (2013)
2. DOE Computational Science Graduate Fellowship (2008-2012, <3% acceptance rate)
3. NSF Graduate Research Fellowship (2008-2013, 10% acceptance rate)

4. Inductee, University of Illinois Bronze Tablet (2008, 3% of graduating seniors)
5. Duncan H. Lawrie Leadership Award (2008)
6. Jeffrey P. Blahut Memorial Scholarship (2007)
7. Franz Hohn and J. P. Nash Scholarship (2006)

Advising

Undergraduates (year; co-advisor; subsequent placement)

1. A. Benson (2016; co-advised with Prof. J. Aldrich; Facebook)
2. C. Wang (2015; co-advised with Prof. J. Aldrich; PhD student, University of Washington)
3. B. Chung (2014; co-advised with Prof. J. Aldrich; PhD student, Northeastern University)
4. N. Fulton (2012; co-advised with Prof. J. Aldrich; PhD student, Carnegie Mellon University)

Last updated: December 6, 2016