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CURRICULUM VITAE

DANIEL P. VELTRI

CONTACT INFORMATION:

Work Address: NIH/NIAID Bioinformatics and Computational Biosciences Branch
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EDUCATION:

Ph.D. Bioinformatics and Computational Biology (2015)
George Mason University, Manassas, VA 20110

M.S. Bioinformatics and Computational Biology (2013)
George Mason University, Manassas, VA 20110

B.A. Environmental, Populismic and Organismic Biology, Computer Science Minor (2006)
University of Colorado at Boulder, Boulder, CO 80309

CURRENT POSITION:

2017 – Present Computational Genomics Specialist (NIH Contractor), Medical Science & Computing, LLC
NIH/NIAID, Bioinformatics and Computational Biosciences Branch, Rockville, MD 20892

PAST RESEARCH POSITIONS:

2015 – 2017 Visiting Postdoctoral Research Fellow, J.A. Crouch Ornamental Pathology Lab
U.S. Department of Agriculture, Agricultural Research Service, Beltsville, MD 20705
Fellowship Funding: Oak Ridge Institute for Science and Education, Oak Ridge, TN 37830

2014 – 2015 Lab Technician (Bioinformatics), J.A. Crouch Ornamental Pathology Lab
Rutgers University, Department of Plant Biology and Pathology, New Brunswick, NJ 080901

2014 Biological Science Student Trainee (Pathways Program), J.A. Crouch Ornamental Pathology Lab
U.S. Department of Agriculture, Agricultural Research Service, Beltsville, MD 20705

2009 – 2015 Graduate Research Assistant, A. Shehu Computational Biology Lab
George Mason University, Computer Science Department, Fairfax, VA 22030

2010 – 2014 Graduate Research Assistant, N. Kabbani and A. Shehu Labs
George Mason University, Krasnow Institute, Fairfax, VA 22030

2004 – 2006 Undergraduate Research Assistant, C. Kearns and D. Oliveras Pollinator Lab
University of Colorado at Boulder, Baker Residential Academic Program, Boulder, CO 80309

TEACHING POSITIONS:

2014 Writing in Statistics and the Sciences (Graduate Course)
George Mason University, Fairfax, VA 22030

2012 – 2014 BRIDGE Scholar (International Bioinformatics and Statistics Graduate Student Mentor)
George Mason University, Fairfax, VA 22030

2010 – 2012 National Science Foundation GK-12 Teaching Fellow (Elementary Math and Science)
Fairfax County Public Schools, Annandale, VA 22003

2006 – 2008 Assistant Language Teacher, Japan Exchange and Teaching (JET) Program (Grades 1-12)
Aomori City Board of Education, Aomori City, Aomori Prefecture, Japan

FELLOWSHIPS AND AWARDS:

2015 – 2017 Oak Ridge Institute for Science and Education, Postdoctoral Fellowship ($65,000/yr)
2015 AAAS Program for Excellence in Sciences, two year AAAS membership and subscription to Science
2014 IEEE International Conference on Bioinformatics and Biomedicine, Best Student Paper Award ($800)
2014 IEEE International Conference on Bioinformatics and Biomedicine, Travel Award ($800)
2013 IEEE International Conference on Comp. Advances in Bio. and Medical Sciences, Travel Award ($700)
2012 – 2014 BRIDGE Scholarship, George Mason University ($3,500/yr)
2010 – 2012 National Science Foundation and George Mason University, GK-12 Fellowship ($45,000/yr)

BIOINFORMATICS SKILLS:

Programming/Scripting: C++, CSS, HTML, jQuery, MySQL, Python, R, and Ruby.
Algorithms/Software: ALLPATHS-LG, Augustus, Bioconductor, BLAST, Bowtie, BRAKER, BWA, CLC Genomics Workbench, diagnostic marker discovery, dimensionality reduction (PCA, Isomap, LLE, t-SNE), DOCK, FASTA, feature selection, genome assembly and annotation (Sanger, 454, Illumina and PacBio), GGPlot2, HISAT2, HMMs, machine learning recognition, Maker, MrBayes, multiple sequence alignment, NAMD, neural networks (Keras), pattern finding, protein structure prediction, read mapping, SPAdes, TopHat2, UNIX/Linux, Velvet, and VMD.

THESES:

Ph.D. "A Computational and Statistical Framework for Screening Novel Antimicrobial Peptides"
Committee: A. Shehu (adviser), J. Solka (co-adviser), I. Vaisman and B. Matthews

M.S. "Physicochemical Feature Selection for Cathelicidin Antimicrobial Peptides"
Committee: A. Shehu (adviser), B. Bishop and I. Vaisman

PEER-REVIEWED JOURNAL PUBLICATIONS:

2017 **D. Veltri**, U. Kamath and A. Shehu. *Improving recognition of antimicrobial peptides and their target selectivity through machine learning and genetic programming*. **Transactions on Computational Biology and Bioinformatics** 14(2):300-313. (DOI:10.1109/TCBB.2015.2462364)

2016 **D. Veltri**, M. Malapi-Wight and J.A. Crouch. *SimpleSynteny: a web-based tool for visualization of microsynteny across multiple species.* **Nucleic Acids Research** 44(W1):W41-W45. (DOI:10.1093/nar/gkw330) [***Cover story of issue***]

M. Malapi-Wight, J.E. Demers, **D. Veltri**, R.E. Marra and J.A. Crouch. *LAMP detection assays for boxwood blight pathogens: a comparative genomics approach.* **Scientific Reports** 6. (DOI:10.1038/srep26140)

2015 M. Malapi-Wight, C. Salgado-Salazar, J.E. Demers, **D. Veltri** and J.A. Crouch. *Draft genome sequence of Dactylonectria macrodidyma, a plant pathogenic fungus in the Nectriaceae.* **ASM Genome Announcements** 3(2):e00278-15. (DOI:10.1124/jpet.113.203976)

C. Salgado-Salazar, Y. Rivera, **D. Veltri** and J.A. Crouch. *Polymorphic SSR markers for Plasmopara obducens (Peronosporaceae), the newly emergent downy mildew pathogen of impatiens (Balsaminaceae).* **Applications in Plant Sciences** 3(11):1500073. (DOI:10.3732/apps.1500073)

B.D. Wingfield, P.K. Ades, F.A. Al-Naemi, L.A. Beirn, W. Bihon, J.A. Crouch, Z. Wilhelm de Beer, L. De Vos, T.A. Duong, C.J. Fields, G. Fourie, A.M. Kanzi, M. Malapi-Wight, S.J. Pethybridge, O. Radwan, G. Rendon, B. Slippers, Q.C. Santana, E.T. Steenkamp, P.W.J. Taylor, N. Vaghefi, N.A. van der Merwe, **D. Veltri** and

M.J. Wingfield. *Draft genome sequences of Chrysoporthe austroafricana, Diplodia scrobiculata, Fusarium nygamai, Leptographium lundbergii, Limonomyces culmigenus, Stagonosporopsis tanaceti and Thielaviopsis punctulata.* **IMA Fungus** 6(1):231-246. (DOI:10.5598/imafungus.2015.06.01.15)

2013 N. Kabbani, J.C. Nordman, B. Corgiat, **D. Veltri**, A. Shehu and D.J. Adams. *Are nicotinic receptors coupled to G proteins?* **BioEssays** 35(12):1025-1034. (DOI:10.1002/bies.20130008)

A. Ashoor, J.C. Nordman, **D. Veltri**, K.H.S. Yang, L. Al Kury, Y. Shuba, M. Mahgoub, F.C. Howarth, C. Lupica, A. Shehu, N. Kabbani and M. Oz. *Menthol inhibits 5-HT3 receptor-mediated currents*. **Journal of Pharmacology and Experimental Therapeutics** 347(2):398-402. (DOI:10.1124/jpet.113.203976)

A. Ashoor, J.C. Nordman, **D. Veltri**, K.H.S. Yang, L. Al Kury, Y. Shuba, M. Mahgoub, F.C. Howarth, C. Lupica, A. Shehu, N. Kabbani and M. Oz. *Menthol binding and inhibition of alpha7-nicotinic acetylcholine receptors*. **PLoS ONE** 8(7):e67674. (DOI:10.1371/journal.pone.0067674)

PEER-REVIEWED CONFERENCE PUBLICATIONS:

2014 **D. Veltri**, U. Kamath and A. Shehu. *A novel method to improve recognition of antimicrobial peptides through distal sequence-based features.* IEEE International Conference on Bioinformatics and Biomedicine (BIBM2014). Belfast, UK. (DOI:10.1109/BIBM.2014.6999187) [***Awarded best student paper.*** Acceptance Rate: 20%]

I. Hashmi, **D. Veltri**, N. Kabbani and A. Shehu. *Knowledge-based search and multi-objective filters: proposed structural models of GPCR dimerization*. ACM Conference on Bioinformatics, Comp. Biology and Biomedical Informatics (BCB2014). Newport Beach, CA. (DOI:10.1145/2649387.2649391) [Acceptance Rate: 25%]

2013 **D. Veltri** and A. Shehu. *Physicochemical determinants of antimicrobial activity*. 5th International Conference on Bioinformatics and Computational Biology (BICoB2013). Honolulu, HI. (DOI:10.13140/RG.2.1.4695.6403; Proceedings ISBN:978-1-62276-971-1) [Acceptance Rate: 20%]

E.G. Randou, **D. Veltri** and A. Shehu. *Systematic analysis of global features and model building for recognition of antimicrobial peptides*. IEEE International Conference on Computational Advances in Bio and Medical Sciences (ICCABS2013). New Orleans, LA. (DOI:10.1109/ICCABS.2013.6629215) [Acceptance Rate: 42%]

E.G. Randou, **D. Veltri** and A. Shehu. *Binary response models for recognition of antimicrobial peptides*. ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics (BCB2013). Washington DC. (DOI:10.1145/2506583.2506597) [Acceptance Rate: 19%]

ABSTRACTS AND POSTERS:

2016 **D. Veltri**, D. Zhang, D. Luster, M. McMahon and J.A. Crouch. *Predicting robust candidates for a boxwood blight immunoassay: an automated computational workflow with broad applications for phytopathology.* 2016 APS Annual Meeting. Tampa, FL. [Poster]

D. Veltri, M. Malapi-Wight and J.A. Crouch. *Performing genomic comparison with tools from the SimpleSynteny server*. 2016 APS Potomac Division Meeting. Richmond, VA. [Poster]

2015 **D. Veltri**. *A computational and statistical framework for screening novel antimicrobial peptides*. George Mason University School of Systems Biology Student Research Day, Manassas, VA. [Poster]

D. Veltri, M. Malapi-Wight and J.A. Crouch. *SimpleSynteny: An accessible tool for genome comparison.* 28Th Fungal Genetics Conference. Pacific Grove, CA. [Extended Abstract & Poster]

M. Malapi-Wight, **D. Veltri**, Y. Rivera and J.A. Crouch. *Rearrangements of the MAT1 gene cluster architecture in the genus Calonectria.* 28th Fungal Genetics Conference. Pacific Grove, CA. [Extended Abstract & Poster]

S. Bhattacharya, **D. Veltri**, A. Patel and D. Cox. *Intra-miR-ExploreR, a novel bioinformatics platform for integrated discovery of miRNA:mRNA gene regulatory networks.* 11th International Symposium on Bioinformatics Research and Applications (ISBRA). Norfolk, VA. [Extended Abstract & Poster]

D. Veltri, M. Malapi-Wight and J.A. Crouch. *SimpleSynteny: A web-based tool for genome comparison*. Phytobiomes 2015: Designing a New Paradigm for Crop Improvement, Washington, DC. [Poster]

2014 M. Malapi-Wight, E. Ismaiel, N. Saied, Y. Rivera, **D. Veltri**, B. Gehesquiere, K. Heungens and J.A. Crouch. *Comparative genomics of the boxwood blight system: insights into the global diversity of the mating-type locus.* APS-CPS Joint Meeting. Minneapolis, MN. [Poster]

2012 **D. Veltri** and A. Shehu. *Physicochemical features for recognition of antimicrobial peptides*. 2012 IEEE International Conference on Bioinformatics and Biomedicine Workshops (BIBMW). Philadelphia, PA. [Extended Abstract & Poster]

INVITED PRESENTATIONS:

2016 "Finding Needles in Biological Haystacks Using Machine Learning and Statistics"
Animal Genomics and Improvement Laboratory, USDA-ARS, Beltsville, MD, USA

2014 "A Novel Method to Improve Recognition of Antimicrobial Peptides through Distal Sequence-Based Features"
IEEE International Conference on Bioinformatics and Biomedicine, Belfast, UK

2013 "Binary Response Models for Recognition of Antimicrobial Peptides"
ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics, Washington, DC, USA

"Systematic Analysis of Global Features and Model Building for Recognition of Antimicrobial Peptides"
IEEE International Conference on Computational Advances in Bio. and Medical Sciences, New Orleans, LA, USA

"Physicochemical Determinants of Antimicrobial Activity"
5th International Conference on Bioinformatics and Computational Biology, Honolulu, HI, USA

2012 "Planning an International Trip (India) for Graduate Students"
National Science Foundation GK-12 Education Conference, Washington, DC, USA

"Computational Analysis and Design of Antimicrobial Peptides"
University of Delhi, Miranda House, Delhi, India

"Hands-On Learning in Elementary Science and Education in the USA"
University of Delhi, Miranda House, Delhi, India

DEPARTMENTAL PRESENTATIONS:

2015 "A Computational and Statistical Framework for Screening Novel Antimicrobial Peptides"
Ph.D. Dissertation Defense, George Mason University, Fairfax, VA 22030

2013 "Physicochemical Feature Selection for Cathelicidin Antimicrobial Peptides"
School of Systems Biology Student Research Day, George Mason University, Fairfax, VA 22030
[***Awarded Best Student Presentation***]

2009 "Staying Ahead of Evolution: Engineering Novel Antimicrobial Peptides"
Interdisciplinary Seed Grant Meetings, George Mason University, Fairfax, VA 22030

2005 "Research in the Kearns and Oliveras Pollinator Lab"
Baker Undergraduate Research Symposium, University of Colorado, Boulder, CO 80309

MEETINGS ATTENDED:

2016 American Phytopathological Society, Annual Meeting, Tampa, FL, USA
American Phytopathological Society, Potomac Division Meeting, Richmond, VA, USA

2015 Phytobiomes 2015, Washington, DC, USA
28th Fungal Genetics Conference, Pacific Grove, CA, USA
American Phytopathological Society (APS) Potomac Division Meeting, Rehoboth, DE, USA
2014 IEEE International Conference on Bioinformatics and Biomedicine, Belfast, UK
2013 ACM Conference on Bioinformatics, Computational Biology and Biomedical Informatics, Washington, DC, USA
IEEE International Conference on Computational Advances in Bio. and Medical Sciences, New Orleans, LA, USA
5th International Conference on Bioinformatics and Computational Biology, Honolulu, HI, USA
2012 IEEE International Conference on Bioinformatics and Biomedicine, Philadelphia, PA, USA
2004 Guild of Rocky Mountain Population Biologists (GRMPBs) Meeting, Nederland, CO, USA

TRAINING WORKSHOPS ATTENDED:

2013 NCBI Discovery Workshops at the National Library of Medicine at the U.S. National Institute of Health
2011 Workshop on Comparative Genomics: Special Session at the Smithsonian Institution

PROFESSIONAL AND SERVICE ACTIVITIES:

Reviewer: *Journal of Cellular Biochemistry, Scientific Reports, Transactions on Comp. Biology and Bioinformatics*
Conference: ACM-BCB 2017 PC Member
Departmental: Baker Director Search Committee, University of Colorado at Boulder (2005 – 2006)
Judge, USDA-ARS Beltsville Poster Day (2017)
Community: Volunteer stream monitor with Virginia Save Our Streams (2000 – Present)
Friends of Agricultural Research - Beltsville (FAR-B) Elementary School Science Volunteer (2016)

PROFESSIONAL ORGANIZATIONS:

American Association for the Advancement of Science (AAAS)
Institute of Electrical and Electronics Engineers (IEEE)

OTHER INFORMATION:

U.S. Citizen
Languages Spoken: English (native proficiency), Japanese (limited working proficiency)