

Nathan David Green

Contact Information	10932 Howland Dr. Reston VA 20191 Phone: +571 477-9205 E-mail: nathan@nathangreen.com WWW: https://nathangreencom.netlify.app/
Citizenship	United States of America
Research Specialty	Natural Language Processing, Machine Learning, Serious Games, Human Computer Interaction, Corpus Linguistics and Under-Resourced Languages
Education	<p>Charles University, Prague, Czech Republic Ph.D., Natural Language Processing, 2010 - 2013</p> <ul style="list-style-type: none">• Adviser: Zdenek Zabokrtsky, Ph.D.• Dissertation: <i>Improvements to Syntax-based Machine Translation using Ensemble Dependency Parsers</i>• The Institute of Formal and Applied Linguistics <p>North Carolina State University, Raleigh, NC USA Graduate Work, Computer Science, 2007 - 2010</p> <ul style="list-style-type: none">• Adviser: Nagiza Samatova, Ph.D.• Research Area: <i>Breaking the Bottleneck of Training Data Creation in Machine Learning using Social Networks Combined with Collaborative Conflict Resolution</i> <p>University of Iceland (Hàskòli Íslands), Reykjavik, Iceland Fulbright Fellowship, 2006 - 2007</p> <p>The George Washington University, Washington, DC USA M.S., Computer Science, 2003 - 2006</p> <p>North Carolina State University, Raleigh, NC USA B.S., Computer Science, 1999 - 2003</p> <ul style="list-style-type: none">• Minor: Mathematics.
Publications	<p>Green, N., and Works, K., Sentiment and Topic Modeling Analysis of Reddit Posts on Changing Ones Major, <i>Journal of Computing Sciences in Colleges</i>, 39, 5 (November 2023), 13–22.</p> <p>Liu, X., Murphy, D., and Green, N. The Hunt for Cybersecurity Data: Exploring the Availability of Open Datasets for Cybersecurity Scientific Research, <i>Journal of Computing Sciences in Colleges</i>, 39, 3 (October 2023), 171–181.</p> <p>Green, N. Creating Tangible VR Spaces for Exploring Algorithm Complexity and Data Structures, <i>Frontiers in Engineering Education (FIE)</i> 2023)</p> <p>Green, N., and Works, K. (2022). Defining the Metaverse through the lens of academic scholarship, news articles, and social media In <i>Proceedings of the 27th International Conference on 3D Web Technology (Web3D '22)</i>. Association for Computing Machinery, New York, NY, USA, Article 10, 1–5.</p>

Green, N., and Works, K. (2022). Measuring Users Attitudinal and Behavioral Responses to Persuasive Communication Techniques in Human Robot Interaction. Proceedings of the 2022 ACM/IEEE International Conference on Human-Robot Interaction, Hokkaido, Japan, 2022

Green, N., and Works, K. (2022). 2022. Are Research Trends in the Consortium for Computing Sciences in Colleges Regionalized? J. Comput. Sci. Coll. 38, 3 (November 2022), 40–50.

Green, N., and Works, K. (2022). 2022. Commonalities of Users Influenced and Not Influenced by Persuasive Communication in Human Robot Interactions. J. Comput. Sci. Coll. 38, 5 (November 2022), 21–30.

Yang, J. and Green, N. Teaching Artificial Intelligence in a Fashion Merchandising Course, Proceedings of the 113th American Association of Family and Consumer Sciences (AAFCS) Annual Conference

Green, N., and Works, K. (2022). Measuring Users' Attitudinal and Behavioral Responses to Persuasive Communication Techniques in Human Robot Interaction, Proceedings of the 2022 ACM/IEEE International Conference on Human-Robot Interaction

Green, N., Larasati, S., Duro, D., Murphy, D., and Laskey, K. (2022). Fact Rep : A Machine Learning Resource for Identifying and analyzing Misinformation During the COVID-19 Pandemic, Proceedings of the 51st Annual Meeting of the Southeast Decision Sciences Institute (SEDSI)

Green, N., and Yang, J. (2022). Constructing Language Resources for Fashion Merchandising Majors For A Generalized AI Curriculum, Proceedings of the 51st Annual Meeting of the Southeast Decision Sciences Institute (SEDSI)

Green, N., Liu, X. and Murphy, D. (2020). Using an Electronic Resume Analyzer Portal (e-RAP) to Improve College Graduates' Employability, Information Systems Education Journal, Vol 18 (7) (in press)

Alshameri, F. and Green , N. (2020). Analyzing the Strength Between Mission and Vision Statements and Industry Via Machine Learning. Journal of Applied Business Research, 36(3), 121-128

Green, N., Liu, X. and Murphy, D. (2019). Developing an Electronic Resume Analyzer Portal (e-RAP): A Natural Language Processing Approach to Enhance College Graduates Job Readiness, 2019 Proceedings of the EDSIG Conference, Cleveland Ohio, November 6-9

Green, N., Liu, X. and Murphy, D. (2018). Revisiting an Educator's Dilemma: Using Natural Language Processing to Analyze the Needs of Employers and Inform Curriculum Development, Proceedings CCSC Eastern Conference, Marymount University, October 19-20

Green, N. and Larasati, S. (2018). The First 100 Days: A Corpus Of Political Agendas on Twitter, LREC 2018, Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC), Miyazaki, Japan, May 2018

Green, N. and Žabokrtský, Z. (2016). Creating Hybrid Dependency Parsers for Syntax-Based MT, Book Chapter in Hybrid Approaches to Machine Translation, Springer, 2016

Green, N. and Larasati, S. (2014). Votter Corpus: A Corpus of Social Polling Language, LREC 2014, Proceedings of the Ninth International Conference on Language Resources and Evaluation (LREC), Reykjavik, Iceland, May 2014

Green, N. (2013). Improvements to Syntax-based Machine Translation using Ensemble Dependency Parsers, PhD Dissertation, Prague, Czech Republic, September 2013

Green, N. (2013). Chapter 4: Link Analysis and Chapter 5: Graph-Based Proximity Measures in Samatova, N.P., Hendrix, W., Jenkins, J., Padmanabhan, K., and Chakraborty, A. (editors) Practical Graph Mining with R, Chapman and Hall/CRC, July 2013

Green, N. and Žabokrtský, Z. (2013). Improvements to Syntax-based Machine Translation using Ensemble Dependency Parsers, Proceedings of the ACL 2013 Second Workshop on Hybrid Approaches to Translation (HyTra), Sofia, Bulgaria, 2013

Green, N. and Žabokrtský, Z. (2012). Ensemble Parsing and its Effect on Machine Translation Technical Report no. 2012/48, Charles University, December 2012

Green, N., Larasati, S. and Žabokrtský, Z. (2012) Indonesian Dependency Treebank: Annotation and Parsing Proceedings of the 26th Pacific Asia Conference on Language, Information and Computation (PACLIC), Bali, Indonesia, 2012

Green, N., Ramasamy, L. and Žabokrtský, Z. (2012). Using an SVM Ensemble System for Improved Tamil Dependency Parsing, Proceedings of the ACL Joint Workshop on Statistical Parsing and Semantic Processing of Morphologically Rich Languages, Jeju, Republic of Korea, 2012

Green, N. and Žabokrtský, Z. (2012) Hybrid Combination of Constituency and Dependency Trees into an Ensemble Dependency Parser, Proceedings of Innovative Hybrid Approaches to the Processing of Textual Data, Workshop in the 13th Conference of the European Chapter of the Association for Computational Linguistics (EACL), Avignon, France, 2012

Green, N. (2012). Building Parallel Corpora through Social Network Gaming, Proceedings of Collaborative Resource Development and Delivery, Workshop in The Eighth International Conference on Language Resources and Evaluation (LREC), Istanbul, Turkey, 2012

Green, N. (2011). Dependency Parsing, WDS1 Proceedings of Contributed Papers, Prague, Czech Republic, pp. 137-142

Popel, M., Mareček, D, Green, N. and Žabokrtský, Z. (2011). Influence of Parser Choice on Dependency-Based MT, Proceedings of the Sixth Workshop on Statistical Machine Translation, Edinburgh, Scotland, pp. 433-439

Green, N. (2011). Effects of Noun Phrase Bracketing in Dependency Parsing and Machine Translation Association for Computational Linguistics (ACL) Student Session, Portland, Oregon, 2011

Green, N., Breimyer, P., Kumar, V. and Samatova, N.P. (2010). PackPlay: Mining Semantic Data in Collaborative Games, Linguistics Annotation Workshop (LAWIV), Uppsala, Sweden, 2010

Green, N., Breimyer, P., Kumar, V. and Samatova, N.P. (2009). WebBANC: Building Semantically Rich Annotated Corpora from Web User Annotations of Minority Languages, 17th Nordic Conference on Computational Linguistics, Odense, Denmark, Vol. 4, pp. 48-56, 2009

Green, N., Breimyer, P., Kumar, V. and Samatova, N.P. (2009). BioDEAL: Community Generation of Biological Annotations, BMC Medical Informatics and Decision Making, Vol. 9 Suppl 1., 2009 (Invited)

Brent, P., Green, N., Breimyer, P., Krishnamurthy, R. and Samatova, N.P. (2009). Systematic Evaluation of Convergence Criteria in Iterative Training for NLP, 22nd International Florida Artificial Intelligence Research Society, Sanibel Island, Florida, 2009

Green, N., Breimyer, P., Kumar, V. and Samatova, N.P. (2008). BioDEAL: Biological Data-Evidence-Annotation Linkage System, IEEE International Conference on Bioinformatics and Biomedicine Workshops (BIBMW), Philadelphia, PA, pp. 99-106

Green, N., Kruger, J., Faldu, C. and Amant, R. (2004). A Reduced QWERTY Keyboard for Mobile Text Entry, ACM's Computer Human Interaction (CHI) Conference on Human Factors in Computing Systems, Vienna, Austria: pp. 1429-1432

Heil, M., Fornaro, R., Green, N., Maness, J. and Webb, W. (2004). On Becoming a Winning Student Team: Placing Third in an International Design Competition, 34th Annual Frontiers in Education (FIE), Savannah, GA, pp. F4G-1-5 Vol. 2

Teaching Experience

Associate Professor, Marymount University, Arlington, VA USA, 2021-current
Assistant Professor, Marymount University, Arlington, VA USA, 2016-2021

Course	Level	Notes
Software Engineering	Undergraduate	SCRUM/Team Focused
Mobile Apps	Undergraduate	Android and React Native
Machine Learning	Undergraduate & Doctorate	Python and Sci-kit
Structure of Programming Languages	Undergraduate	Practical Application
Data Structures	Undergraduate	Implemented in Java/Python
Scripting	Undergraduate & Masters	Python
Advanced Web Development	Undergraduate	Javascript, PHP, and MYSQL
Natural Language Processing	Undergraduate & Masters	Implementation with NLTK
Human Computer Interaction	Undergraduate & Masters	Project Based
Capstone	Undergraduate	Project and Writing focused

Assistant Professor, Westfield State University, Westfield, Ma USA, 2013-2016

Course	Level	Notes
Software Engineering	Undergraduate	SCRUM/Team Focused
Mobile Apps	Undergraduate	Android
Web Development	Undergraduate	HTML, CSS, Javascript
Advanced Web Development	Undergraduate	PHP, and MYSQL
Capstone	Undergraduate	Coding Based

Industry Experience

Natural Language Processing & Data Science Consultant,
 Washington, DC USA (2014-Current)

The Bureau of Labor Statistics, Washington, DC USA (2003-2006)

IT Specialist and Software Engineer (GS-12)

- Designed, constructed, and maintained applications for economists and statisticians using ASP, Visual Basic, and Java J2EE technologies. All development followed IBM's Rational Unified Process
- Converted and redesigned main frame SAS statistical calculations to a J2EE architecture for the International Price Program's indexes and quality measures

Requirements Analyst

- Lead requirements analysis for multiple ongoing projects in the Bureau which required the drafting and maintaining of requirements documents. Many times this included the development of early software prototypes
- Drafted and maintained requirement documents and software prototypes used by the department
- Analyzed and reviewed newly drafted requirements so that Bureau wide software development could maintain consistent standards in a cross-department requirements analysis team

IBM, Research Triangle Park, North Carolina USA (2001)

CO-OP Student for Options/Building Blocks Testing

- Mobile Options Testing: Created testing matrices to verify that new options would be compatible with IBM's supported mobile systems and that the legacy options were compatible with new mobile systems. Worked with the development team to find the causes of discovered bugs
- Technical Writing: Wrote troubleshooting guides for our customer support team; created and verified user manuals to be shipped with our options
- Customer Care: Worked with the business customers to recreate bugs and find workarounds that were acceptable for the customer until the development team could develop a fix

**Research
Experience**

Early Stage Researcher (Fall 2010 - Fall 2013), Charles University, Prague, Czech Republic

- Work in Dependency Parsing and its effect on statistical machine translation
- Research into the use of self-training, ensemble learning, and active learning in dependency parsing
- Identifying machine learning techniques to aid in semi-supervised dependency parsing for under-resourced languages
- Clara training programs included: Consolidating and Harmonizing Treebank Annotation, Processing Morphologically Rich Languages, Product Planning for Next Generation Information Access Technology Solutions, and New Developments in Computational Linguistics.

Graduate Research Assistant (Fall 2007 - Fall 2009), North Carolina State University, Raleigh, NC USA

- Created and led three software development projects for collaborative data annotation to solve the machine learning's training data bottleneck: WebBANC, BioDEAL, and PackPlay
- Constructed experimental frameworks for research group to examine the use of semantic constraints in machine translation

- Research topics included:
 - **Machine Translation:** Semantic constraints with application to under-resourced languages, parallel corpora construction, and model selection via syntactic text clustering
 - **Natural Language Processing:** Systems for annotating web pages to create annotated corpora, empirical studies to demonstrate the usefulness of the web for minority language groups, convergence criteria for iterative training in NLP, and creating collaborative games to harvest training data for language technologies
 - **Biology Domain:** Application development to allow ontological annotation to link published documents with experimental data

Awards

AIM-AHEAD Program for Artificial Intelligence Readiness Grant : Marymount University AI Lab for Health Equity for Optimal Aging in the Hispanic Community

- 2023-2024 (\$100,000)

College of Business, Innovation, Leadership, and Technology Innovation Award

- 2020-2021 academic year

Commonwealth Cyber Initiative(CCI) Grant: Cyber-Disaster Resilience: Assessment Framework for Cyber Impacts During Natural Disasters

- 2019-2021

School of Business and Technology Outstanding Teacher of Year

- 2018-2019 academic year

Rose Bente Lee SBA Endowment

- Marymount University 2017
- Funded the research for and the initial creation of the Data Fusion Center
- Created common research datasets for the SBA school

University Research Grant

- Westfield State University 2014.
- Researching linguistic annotation standards and corpus creation for social media polling language. Results disseminated at LREC 2014

Marie Curie Early Stage Researcher

- European Union, 2010 - 2013.
- Researching dependency parsing, linguistic annotation standards, and ensemble machine learning techniques.

Fulbright Fellowship

- Iceland, 2006 - 2007.
- Researched Icelandic language in modern human language technology.

Research Grant, North Carolina State University

- 2008 - 2009 (\$26,847)
- 2007 - 2008 (\$26,386)

Teaching Grant, North Carolina State University

- 2009 - 2010 (\$22,341)

Outstanding Graduate Teaching Assistant Award, 2010

Upsilon Pi Epsilon

- International Honor Society for the Computing and Information Disciplines

IEEE Computer Society International Design Competition (CSIDC) World Finalist

- CSIDC 2003 theme *Added Value: Turning Computers Into Systems*
- 3rd Place, the highest finish of any U.S. team at that time

Resources and Tools Created

- ResumeHop.com : Compares resumes to job postings using various NLP techniques.
- 100 Day Corpus: **Nathan Green**, Septina Dian Larasati
- Votter Corpus: **Nathan Green**, Septina Dian Larasati
(<http://globeotter.com/vottercorpus/>)
- WMT Dependency Annotations: **Nathan Green**, Zdeněk Žabokrtský
(<http://nathangreen.com/wmtdata/>)
- Indonesian Dependency Trees: **Nathan Green**, Septina Dian Larasati (available upon request)
- PackPlay Collaborative Online Game Framework: **Nathan Green**, Paul Breimyer, Vinay Kumar, Nagiza F. Samatova (available upon request)
- Biological Data-Evidence-Annotation Linkage (BioDEAL): **Nathan Green**, Paul Breimyer, Vinay Kumar, Nagiza F. Samatova (available upon request)
- Web System to Build Annotated NLP Corpora (WebBANC): **Nathan Green**, Paul Breimyer, Vinay Kumar, Nagiza F. Samatova (available upon request)

Service

Research Publication Reviewer

- Conferences: ACL, EMNLP, LREC, CCSC, FIE
- Grants: NSF, DHS

Center for Resilient and Sustainable Communities (C-RASC) Representative

- 2019-current

Consortium for Computing Sciences in Colleges (CCSC) Eastern Steering Committee Member

- 2018-current

Consortium for Computing Sciences in Colleges (CCSC) Eastern Conference Chair

- Set up and organization of the 2018 conference
- Hosted conference, student sessions, and programming competition
- Oversaw call for papers, participation, and accommodations

Part-time eSports Coach

- 2019-2021
- Recruit and Evaluate High School Students
- Organize the student squads for two eSports games

USO Data Analysis

- 2019
- Conduct Data Analysis for USO (Non Profit) in Arlington VA
- Executed and delivered analysis and code base

Marymount Strategic Plan Task Force Member 2018-2019

ABET Accreditation Committee (2013-2014)

- Create and Review protocols for ABET evaluation and reaccreditation
- Accreditation passed with zero warnings or deficiencies

Middle School Computer Programming club(2014-2015)

- Focused on getting females into STEM fields
- 40+ students on a weekly basis
- Introduced them to programming through Alice and code.org

Faculty Mentor (2013-2014)

- The Computer Science Club
- The Gaming Club

**Professional
Organizations**

Association for Computational Linguistics (ACL)

Association for Computing Machinery (ACM)

Consortium for Computing Sciences in Colleges (CCSC)

European Language Resources Association (ELRA)