

# Brian M. Powell

Lane Department of Computer Science & Electrical Engineering  
West Virginia University  
P.O. Box 6109  
Morgantown, WV 26506-6109

Office Phone: (304) 293-6255  
E-mail: [brian.powell@mail.wvu.edu](mailto:brian.powell@mail.wvu.edu)

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## EDUCATION AND PROFESSIONAL EXPERIENCE

### EDUCATION

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|---|-------------|
| <b>Ph.D., Computer Science</b><br>West Virginia University, Morgantown, West Virginia<br>Dissertation: Enhancing Online Security with Image-based CAPTCHAs<br>Advisor: Afzel Noore, Ph.D. | <b>2018</b> |
| <b>M.S., Computer Science</b><br>West Virginia University, Morgantown, West Virginia  | <b>2006</b> |
| <b>B.A., Computer Science</b><br>Malone College (now Malone University), Canton, Ohio   | <b>2003</b> |

### EMPLOYMENT HISTORY

- West Virginia University, Morgantown, West Virginia**  
Lane Department of Computer Science & Electrical Engineering  
*Teaching Assistant Professor*, 2018 to present  
*Lecturer*, 2018  
*Graduate Teaching Assistant*, 2003-2018
- Department of Management Information Systems  
*Adjunct Lecturer*, 2019-2020
- Allegheny Geotourism, Morgantown, West Virginia**  
*Owner*, 2014-2018
- In the Round Design Group, Canton, Ohio**  
*Developer/Systems Administrator*, 2002-2003

### HONORS, AWARDS, AND NOMINATIONS

#### Awards Received

- Statler College Excellence in Diversity, Equity, and Inclusion Award (2023)**  
West Virginia University, Morgantown, West Virginia
- West Virginia University Foundation Distinguished Doctoral Fellowship (2005)**  
West Virginia University, Morgantown, West Virginia
- Malone College Outstanding Graduate in Computer Science (2003)**  
Malone College (now Malone University), Canton, Ohio

## Award Nominations

### Statler College Educator of the Year Award (2023)

West Virginia University, Morgantown, West Virginia

## TEACHING

### COURSES TAUGHT

Course Number	Title	Semester	Enrollment
CS 101	Intro to Computer Applications	Summer 2023	22
		Summer 2022	19
		Summer 2021	31
CS 110	Introduction to Computer Science	Spring 2023	66
		Spring 2022	68
		Fall 2020	63
CS 111	Introduction to Data Structures	Summer 2022	45
		Summer 2021	32
CS 293B	Intro to Python Programming	Fall 2019	25
CS 293C	Intro to Data Science	Spring 2020	7
CS 350	Computer System Concepts	Fall 2023	92
		Summer 2023	10
		Spring 2023	70
		Fall 2022	100
		Spring 2022	75
		Fall 2021	75
		Spring 2021	97
		Spring 2020	65
		Spring 2019	77
CS 460 (team-taught) <i>formerly CS 493C</i>	Introduction to Big Data Engineering	Fall 2023	18
		Fall 2022	12
		Fall 2021	5
		Fall 2019	4
		Fall 2018	9

Course Number	Title	Semester	Enrollment
CS 560 (team-taught) <i>formerly CS 591L</i>	Big Data Engineering	Fall 2023	30
		Fall 2022	11
		Fall 2021	23
		Fall 2020	10
		Fall 2019	17
		Fall 2018	16
CYBR 535 <i>formerly CYBR 591A</i>	Business Network Security	Spring 2020	22
		Spring 2019	11

## COURSES COORDINATED

### Computer Science 101: Intro to Computer Applications

- Coordinate all Morgantown- and Beckley-based sections of CS 101.
- Monitor section instructors, including conducting regular check-ins, holding follow-up meetings to address identified performance issues, and ensuring their responsibilities were completed in a timely manner.
- Mentor GTAs and lecturers.
- Update and maintain shared course materials including in-class projects, homeworks, exams, presentations, videos, Supplemental Content, and website.
- Build course shells on CS101 website, in eCampus, and in MyLab IT for each instructor.
- Teach class sections and assist in Open Lab as needed.
- Process MyLab Lessons and MyLab Extra Credit Projects grades throughout the semester.
- Respond to student complaints and concerns.
- Review academic integrity violations and grade appeals.
- Analyze instructor and course performance based on comments and scores from SEIs and student surveys.
- Prepare course portfolios and end-of-semester documentation.

Semester	CS 101 Sections	Supervised GTAs/Lecturers	Enrollment
Fall 2023	11	6	541
Summer 2023	2	1	55
Spring 2023	11	6	520
Fall 2022	14	7	433
Summer 2022	2	1	44
Spring 2022	14	7	571
Fall 2021	17	8	586
Summer 2021	4	1	65
Spring 2021	16	8	682

Semester	CS 101 Sections	Supervised GTAs/Lecturers	Enrollment
Fall 2020	17	10	846
Summer 2020	5	5	93
Spring 2020	21	11	976
Fall 2019	24	12	1,029
Summer 2019	6	4	122
Spring 2019	19	11	882
Fall 2018	21	12	975
Summer 2018	6	6	149

### Computer Science 293B: Intro to Python Programming

- Oversaw the creation of a new service course based on Python.
- Monitored the section instructor, including holding ongoing meetings about the current status of the course.
- Developed, updated, and maintained course materials including in-class projects, homeworks, exams, and presentations.
- Taught class sections and assisted in Open Lab as needed.
- Reviewed academic integrity violations.
- Analyzed instructor and course performance based on comments and scores from SEIs and CS 293B course survey.
- Prepared of course portfolio and end-of-semester documentation.

Semester	CS 293B Sections	Supervised GTAs/Lecturers	Enrollment
Summer 2019	1	1	3
Spring 2019	1	1	25
Fall 2018	1	1	44
Summer 2018	1	1	3

### Computer Science 490: Teaching Practicum

- Recruit and schedule of undergraduate student assistants (proctors).
- Work with section instructors and Open Lab instructors to address proctor performance issues.
- Evaluate of proctor efforts and issuance of final grades.

Semester	CS 490 Sections	Enrollment
Fall 2023	1	4
Spring 2023	3	7
Fall 2022	3	7
Spring 2022	3	0

Semester	CS 490 Sections	Enrollment
Fall 2021	3	0
Spring 2021	3	1
Fall 2020	3	1
Spring 2020	3	10
Fall 2019	2	26
Spring 2019	2	28
Fall 2018	2	34

## RESEARCH

## PUBLICATIONS

### Journal Papers

1. **B. M. Powell**, G. Goswami, M. Vatsa, R. Singh, and A. Noore, "fgCAPTCHA: Genetically Optimized Face Image CAPTCHA," *IEEE Access*, vol. 2, pp. 473–484, Apr. 2014.
2. G. Goswami, **B. M. Powell**, M. Vatsa, R. Singh, and A. Noore, "FR-CAPTCHA: CAPTCHA based on Recognizing Human Faces," *PLoS ONE*, vol. 9, no. 4, p. e91708, Apr. 2014.
3. G. Goswami, **B. M. Powell**, M. Vatsa, R. Singh, and A. Noore, "FaceDCAPTCHA: Face Detection based Color Image CAPTCHA," *Future Generation Computer Systems*, vol. 31, pp. 59–68, Feb. 2014.
4. **B. M. Powell**, A. C. Day, R. Singh, M. Vatsa, and A. Noore, "Image-based face detection CAPTCHA for improved security," *International Journal of Multimedia Intelligence and Security*, vol. 1, no. 3, pp. 269–284, 2010.

### Conference Proceedings and Papers

1. M. T. Ashraf, M. Y. Ahamed, **B. M. Powell**, K. C. Dey, and D. Adjero, "Public Perceptions Towards Autonomous Vehicle Technology: A Sentiment Analysis Using Twitter Data and Natural Language Processing Models." Presented at the *102nd Annual Meeting of the Transportation Research Board*, Washington, DC, Jan. 2023. Paper Number TRBAM-23-04110.
2. **B. M. Powell**, E. Kalsy, G. Goswami, M. Vatsa, R. Singh, and A. Noore, "Attack-Resistant aiCAPTCHA using a Negative Selection Artificial Immune System," in *Proc. IEEE 38th Symposium on Security and Privacy, 2nd Workshop on Bio-inspired Security, Trust, Assurance, and Resilience*, San Jose, CA, May 2017.
3. **B. M. Powell**, A. Kumar, J. Thapar, G. Goswami, M. Vatsa, R. Singh, and A. Noore, "A Multibiometrics-based CAPTCHA for Improved Online Security," in *Proc. IEEE 8th International Conference on Biometrics: Theory, Applications and Systems*, Niagara Falls, NY, Sept. 2016.

4. G. Goswami, R. Singh, M. Vatsa, **B. M. Powell**, and A. Noore, "Face Recognition CAPTCHA," in *Proc. IEEE 5th International Conference on Biometrics: Theory, Applications and Systems*, Washington, DC, Sept. 2012.

## Conference Posters

1. **B. M. Powell**, R. Singh, M. Vatsa, and A. Noore, "Poster: Adaptcha: An Adaptive CAPTCHA for Improved User Experience," at *38th IEEE Symposium on Security and Privacy*, San Jose, CA, May 2017.

## SERVICE

### SERVICE TO THE UNIVERSITY

#### Artificial Intelligence Task Force

*Task Force Member, 2023 to present*

#### The Honor Society of Phi Kappa Phi, West Virginia University Chapter #181

*Chapter President, 2017 to present*

*Chapter Secretary-Treasurer, 2016-2017*

#### IEEE, WVU Beta Rho Chapter

*Faculty Advisor, 2020 to present*

#### oSTEM: Out in Science, Technology, Engineering, and Mathematics, WVU Chapter

*Faculty Advisor, 2018 to present*

#### *Spectrum*

*Faculty Advisor, 2020 to present*

### SERVICE TO THE COLLEGE

#### Statler College Undergraduate Academic Affairs Committee

*Committee Chair, 2023 to present*

*Computer Science Representative, 2021 to present*

#### Statler College Academic Diversity Committee (formerly Statler College Diversity, Equity and Inclusion Committee)

*Lane Department Representative, 2019 to present*

#### Statler College Computer Committee

*Committee Chair, 2019-2020*

*Lane Department Representative, 2018-2021*

#### Department Chair Search Committee

*2019-2020 Lane Department Chair Search Committee Member, 2019-2020*

*2020-2021 Lane Department Chair Search Committee Member, 2020-2021*

## **SERVICE TO THE DEPARTMENT**

### **Computer Science Undergraduate Curriculum Committee**

*Committee Chair and CS Undergraduate Program Coordinator, 2021 to present*  
*Member, 2018 to present*

### **Faculty Search Committee**

*CPE/CS Teaching Faculty Search Committee Member, 2019-2020*  
*SENG Teaching Faculty Search Committee Member, 2022*

## **SERVICE TO THE PROFESSION**

### **Reviewer**

- *IEEE Access*
- *IEEE Transactions on Information Forensics and Security*
- *The Journal of Supercomputing*
- *Annual Meeting of the Transportation Review Board*

## **MEMBERSHIPS**

### **PROFESSIONAL ORGANIZATIONS**

- Institute of Electrical and Electronics Engineers (IEEE)
- American Society for Engineering Education (ASEE)

### **HONOR SOCIETIES**

- The Honor Society of Phi Kappa Phi
- Upsilon Pi Epsilon (UPE) Honor Society
- Sigma Zeta Science & Mathematics Honor Society