Creed F. Jones III, PhD

Experience

Collegiate Professor and Assistant Director of Master of Science Programs, Virginia Polytechnic Institute and State University, Blacksburg, VA, current
- Full professor in the Bradley department of Electrical and Computer Engineering
- Research interests include machine learning, ophthalmic imaging and image processing
- Teaching professor of graduate and undergraduate courses

Principal, Creed Jones Associates LLC, Christiansburg, VA, current
- Independent consulting in machine learning and biometrics
- Research and development
- Expert witness services

Chief Technology Officer, Globe Biomedical LLC, Riverside, CA, current
- Development of image-based wearable medical device for monitoring of glaucoma
- Strategic leadership of corporate and R&D efforts

Associate Dean for Graduate Programs, and Tenured Professor of Engineering, California Baptist University, Riverside, CA, 2013-2019
- Full professor in the Computing, Software and Data Sciences department
- Research interests include ophthalmic imaging, biometrics, advanced analytics and image processing
- Developed and led the first five MS programs in the College of Engineering
- As a member of the Dean's cabinet, participate in the administration of the College of Engineering
- Teaching professor of graduate and undergraduate courses

Senior Research Scientist, Strategic Analytics, Humana Inc., Louisville, KY, 2006-2013
- Led a team of scientists and analysts performing machine learning and analytics in both clinical and business realms
- Research and development in data mining for consumer health insights
  - Developed an inferential model to impute BMI values to members from administrative claims data
  - Led development of a predictive model to identify members at risk of an Adverse Drug Event
- Developed and led Humana's Statistical Residency program for entry-level analysts

Associate Professor of Computer Science, Seattle Pacific University, Seattle, WA, 2003-2007
- Tenure-track teaching professor in the Department of Computer Science
- Major teaching interests were programming, image processing and networks

Independent Consultant, Creed Jones Associates LLC, 2003-2006
- Consulting in the areas of biometric algorithms and industrial image processing
- 18-month development of a new biometric algorithm; development of a data interchange format for a behavioral biometric; and creation of a recognition method for a novel industrial symbology

Senior Product Engineer, Sagem Morpho Inc (now MorphoTrak), Tacoma, WA, 1999-2007
- Biometric product / systems engineering, standards development lead and industry liaison
- Represented SMI on national and international biometrics standards development committees

Technical Director, Avéreon Research (now a division of Bally Gaming), Bellevue, WA, 1998-1999
- Co-founder and Technical Director
- Secured initial development contract, defined product line, led development efforts
- Avéreon was a start-up company providing image processing solutions to OEM customers

Director of Vision Systems Integration, Technical Director and **Director of Operations**, FSI Automation / Optimas Corporation, Bothell, WA, 1996-1999
- Created and led the vision systems development team; later led all technical activities

Lead Systems Engineer, Perceptics Corporation (a Northrop Grumman subsidiary), Knoxville, TN
- Systems and software engineering of image processing products – automated license plate reader, cargo container identification system, contact lens inspection system, food package inspection system

Primary Technical Competencies
- Image processing and computer vision
- Machine learning, predictive modeling, data mining and clustering
- Biometric identification, especially image-based modalities
- Software Development in Python, Java, MATLAB, C++, SAS and assembly language
- Problem definition, identification of key insights and communication to stakeholders

Education
Ph.D. in Computer Engineering, Virginia Polytechnic Institute and State University**,** Blacksburg, VA
- 2005; Dissertation: *Color Face Recognition using Quaternionic Gabor Wavelets*

M.S. in Computer and Electrical Engineering, Oakland University, Rochester, MI
- Concentrations: image processing and controls

B.S. in Electrical Engineering, Oakland University, Rochester, MI

Reviewed Publications
Articles and Conference Papers:
- Rickard, M., J. Park, C. Jones, A. Sit and P. Davey. "Development of a novel wearable intraocular pressure monitor based on image tracking of exposed sclera", 2020 ARVO Annual Meeting
- Rickard, M., J. Butler, C. Jones, J. Park, A. Hassel, J. Villegas, C. Van Zant, A. DeWolf, N. Kawaguchi, S. Truitt and N. Lazkani, "Development of a Nanofabricated Sensor for Monitoring Intraocular Pressure Via Ocular Tissue Strain", IEEE EMBC 2019, Berlin, DE, July 2019.
- Rickard, M., C. Jones, N. Lazkani, L. Macy, J. Park, J. Key, C. Gipson-Bean, J. Gentry, and M. Saenz, " Scleral strain measurements near the limbus using in vivo imaging", ARVO Imaging 2018, Honolulu, HI, April 2018.
- Rickard, M., C. Jones, C. Gipson-Bean, J. Park, E. Sutter, J. Jacobson, and J. LaMotte, "Geometric measurements of natural features at the temporal limbus in support of an image-based, real-time IOP sensing system", Academy 2016 Anaheim, American Academy of Optometry, November 2016.

- Rickard, M., C. Jones, C. Gipson-Bean, J. Park. "Image processing to measure scleral strain near the limbus using digital microscopy in porcine eyes", 2016 ARVO Imaging in the Eye conference, April 30, 2016, Seattle, WA.
- Rickard, M., C. Jones, J, Cox, J. DeVore, A. Castro, J. Brannen, "Scleral strain near the limbus using digital microscopy of natural features in porcine eyes", 2015 ARVO Annual Meeting, May 3-7, 2015, Denver, CO.
- Rickard, M., C. Jones, M. Migdal, N. Reyes, and A. Murguia, "Experimental Investigation of RFID Range for Intraocular Implants", Proc. 10th IASTED International Conference on Biomedical Engineering, June 2014, Zurich, Switzerland.
- Creed F Jones III and A. Lynn Abbott, "Color Face Recognition by Hypercomplex Gabor Analysis", Proc. IEEE Int'l Conf. on Automatic Face and Gesture Recognition, 2006. April 2006, pp. 126-131.
- Creed F Jones III and A. Lynn Abbott, "Optimization of Color Conversion for Face Recognition," *EURASIP Journal of Applied Signal Processing*, 2004:4, pp. 522-529.
- Scalera, J.E.; Jones, C.F., III; Soni, M., Bucciero, M.B., Athanas, P.M., Abbott, A.L., Mishra, A., "Reconfigurable Object Detection in FLIR Image Sequences," *Proc. 10th Annual IEEE Symposium on Field-Programmable Custom Computing Machines*, 2002. 22-24 April 2002, pp. 284-285.
- Jones, C.F., III; Christman, M., "Genetic Algorithm Solution of Vigenère Alphabetic Codes," *Proc. IEEE Mountain Workshop on Soft Computing Industrial Applications*, 25-27 June 2001, pp. 59-63.
- Creed F. Jones III and James C. Griner, "An Image Processing System to Inspect Foil-packaged Food," *Proc. Food Process Automation Conference III*, 9-12 February 1994, pp. 55-61.
- Creed Jones and John Merva, "Vision-Based Process Control of Circuit Film Emboss," *Proc. Vision West*, Society of Manufacturing Engineers, 1986 (received best paper award for conference)

Technical Standards:
- INCITS 378-2004, Finger Minutiae Format for Data Interchange; US national standard for exchange of fingerprint minutiae biometric data (technical editor)
- ISO/IEC 19794-2:2005, Biometric Data Interchange Formats — Part 2: Finger Minutiae Data; international data format standard for minutiae-based fingerprint representation (chief editor)
- ISO/IEC 19794-9, Biometric Data Interchange Formats – Part 9: Vascular Image Data; international data format standard for vein pattern data (co-editor)

Other Publications
Biometrics: Identifying the Issue (joint article), MOVE (the magazine of the American Association of Motor Vehicle Administrators), Winter 2000

Invited Presentations and Workshops
Imaging for Glaucoma Detection, International Conference on Innovation & Entrepreneurship, Kunshan, China, December 2016

Computer Science as a Career, Riverside STEM Academy symposium, April 2015
Consumer Obesity Modeling, Humana SAS day, October 2010
Using Predictive Modeling to Forecast Member Health and Wellness, National Predictive Modeling Summit, 2010
Human Identification Applications and Challenges, University of Washington, May 26, 2006
The INCITS 378 standard, 2006 CardTech/SecurTech Conference, May 4, 2006
Is Automated Face Recognition Better in Color? Biometric Seminar, Mitretek Systems, May 17, 2005
Point of Sale Biometrics, 2002 Biometric Consortium Conference, September 24, 2002
Paying at your Fingertip: Dawning of the Biometric Age, nacs.tech, April 23, 2002
Emerging Trends in Biometrics, Integrated Justice Information Systems Symposium, March 27, 2002
Developing a BioAPI compliant application, 2000 Biometric Consortium Conference, April 2000

Expert Witness Experience (partial list)

Expert report, deposition and testimony in CrossMatch vs. Suprema (US ITC) for Fenwick & West
Expert report and deposition in ImageWare vs. M2SYS/Neurotechnology for San Diego IP Law
Several IPR review reports of existing patents, for Unified Patents
Expert report and deposition in The Hillman Group, Inc. vs. KeyMe, LLC for Quinn Emanuel
Expert reports in Maxell vs. Apple for DLA Piper
Other engagements ongoing or confidential (including reports and depositions)

Affiliations and Memberships

Senior Member, Institute of Electrical and Electronic (2000 - present)
ANSI/INCITS M1 Committee for biometrics standards
ANSI/INCITS M1.3 Task Group on Biometric Data Interchange Formats - chair (2001 - 2006)
ANSI/INCITS B10.9 Task Group on biometrics – chair (2001)
ANSI/INCITS B10.8 biometric task force – technical editor (1999 - 2001)
BioAPI Industry Consortium – member / participant (1999 – 2001)

Courses Taught

Image Processing	Computer Vision
Applications of Machine Learning	Artificial Intelligence
Computer Architecture for SW Engineers	Introductory Programming (in both Java and C++)
Software Construction	Introduction to Logic System Design
Imaging and Sensing for Engineers	Software Project Management

Patents

In application (2020) - US Patent Application #17074433 – "Systems and Methods for Monitoring Eye Health"
In application (2016) – PCT Application – "Systems and Methods for Monitoring Eye Health"
Chinese Patent #107,072,528B – "System and Method for Monitoring Eye Health", July 2, 2021
US Patent #10,806,341 – "Systems and Methods for Monitoring Eye Health", October 20, 2020
US Patent #9,770,169 – "Systems and Methods for Monitoring Eye Health", September 26, 2017

US Patent #8,543,428 – "Computerized System and Method for Estimating Levels of Obesity in an Insured Population", September 24, 2013

US Patent #6,298,171 – "System for Reading Data Glyphs", October 2, 2001

US Patent #6,078,698 – "System for Reading Data Glyphs", June 20, 2000

US Patent #5,515,159 – "Package Seal Inspection System", May 7, 1996

US Patent #5,081,685 – "Improved Method and Apparatus for Reading a License Plate", January 14, 1992

Graduate Students Supervised

At Virginia Tech:

Ashley Smith, MS 2022: Tracking and Measuring Objects in Obscure Image Scenarios Through the Lens of Shot Put in Track and Field

Saksham Raina, MS 2022: Exploring Involution in Deep Convolutional Networks

Surasith Boonaneksap, MS 2021: The Study of Potential Benefits of Deep Convolutional Neural Networks for Segmenting Unruptured Intracranial Aneurysms from 3D MRA-TOF Images

Chieh Tsao, MEng 2021: An Increased-Accuracy Modified Random Forest Algorithm

Meghana Shakhapur, MEng 2021: Deep Anomaly Detection in Surveillance Videos

Niu Yuan, Meng 2021: Autonomous Robotic Mapping and Navigation using ROS and Gazebo

Yi Huang, MEng 2021: Cross-Domain Context-aware 3D Hand Pose Estimation

Shalini Ragothaman, MEng 2020: Machine Learning for Semantic Art Description

Yihao Hu, MEng 2020: Protein Secondary Structure Prediction with Cyclical Learning Rate and Jacobian Regularization

Nic Acton, MEng 2020: Interdisciplinary Technologist Program Design

Hitesh Baadkar, MEng 2021: Automated Rooftop Segmentation from Aerial Imagery

At California Baptist University:

Jonathan Key, MSSE 2016: A Mobile Application to Analyze Sclera Strain in Images of the Eye

Ronith Jukanti, MSSE 2017: Real-time Gesture Recognition on a Smartphone

Sunnykumar Kamani, MSSE 2017: An Enhanced Fingerprint Recognition Algorithm

Harshil S Parikh, MSSE 2017: Finger Vein Recognition System

Rishith Varala, MSSE 2017: Strategic Analysis in e-Commerce

Francis Lalwadi, MSSE 2018: Event Management System

Bhanu Manikonda, MSSE 2018: A Web Resource Tool for Tracking Human Resources

Riddhi Patel, MSSE 2019: Web-Enabled IoT System for Crop Planning

Awards

INCITS Team award as part of the M1 editorial team – 2006

INCITS Gene Milligan award for effective standards committee management – 2005

Gilbert Faison scholarship (Virginia Tech) – 2002

William A. Blackwell Award for best research presentation (Bradley departmental award) – 2001-2002

Exceptional Technical Achievement award – Perceptics Corporation – 1991

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