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Education

M.S. Industrial and Systems Engineering   **May 2016**
University of Florida, Gainesville, FL

B.S. Civil Engineering with Environmental Option   **May 1997**
University of Vermont, Burlington, VT

Honors and Awards

Divisional winner University of Florida Superior Accomplishment Award, 2013

Professional Experience

Technical Operations Manager   **May 2010 – Current**
Advanced Computing and Information Systems Laboratory, University of Florida, Gainesville, FL

Infrastructure software developer for lab's grant projects. Senior system administrator for computer engineering academic research laboratory specializing in cloud and virtualization systems.

Key Activities

- Develop open-source software to provide interfaces to the iDigBio data store for scientists and provide training and outreach to biologists to increase use of iDigBio in research

- Create collaborations across research institutions including the Encyclopedia of Life, Duke Universtity, Royal Botanic Gardens, Kew, San Diego Super Computing Center, and NARA Institute of Science and Technology to advance goals of iDigBio and PRAGMA projects

- Serve as the interface between the disruptive computing environments needed for cutting-edge computer research and the broader campus production and research systems

- Maintain the facilities and configurations of over 260 servers running cloud, distributed, and virtualization environments such as Elasticsearch, VMware, XenServer, Spark, and Ceph

- Provide on site support and local coordination for NSF funded multi-site research grants including iDigBio, PRAGMA, FutureGrid, GatorCloud, PlanetLab, and ExoGENI

- Supervise and mentor computer engineering graduate students in the technical aspects of their research

System Administrator   **January 2008 – May 2010**

Florida Museum of Natural History, University of Florida, Gainesville, FL

Lead system administrator for research/business environment with 300 staff and 40 Linux and Windows servers.

Key Activities

- Create, prioritize, and complete projects like virtualization and SAN storage that add new capabilities to museum staff and provide support for grant projects

- Design and maintain software development environments for team of 6 programmers and web site managers

- Supervise and mentor assistant system administrator and interns

System Administrator   **April 2007 – January 2008**

Bureau of Economic and Business Research, University of Florida, Gainesville, FL

System and workstation administrator for business environment with 250 staff, Linux and Windows servers, and 120 Windows workstations.

Key Activities

- Modernize aging infrastructure with virtualization for servers and Ghost workstation deployment

Lead Programmer   **September 2005 – April 2007**

Florida Museum of Natural History, University of Florida, Gainesville, FL

Lead developer on NSF funded BioCorder grant project. Quarter-time system administrator.

Key Activities

- Author web application for storing and sharing genetic laboratory data in PHP/PostgreSQL

- Coordinate work from programmers and principal investigators from other institutions

- Lead special projects aimed at modernizing IT infrastructure like automated build systems

System Administrator, Programmer   **June 2001 – August 2005**

Signal Advertising, Inc., Montpelier, VT

System administrator and software developer for Internet development business.

Key Activities

- Design Linux-based infrastructure to provide ISP services at 99.99% availability (web hosting, email, database, custom applications, etc)

- Manage infrastructure and relations with multiple Tier IV data centers

- Author bespoke web applications in PHP/MySQL including e-commerce and data aggregation

- Provide development framework and core code to 3 person development team

Database Specialist   **May 1997 – June 2001**

Stone Environmental, Inc., Montpelier, VT

Use desktop software and scripts to manage and present environmental data for reporting.

Key Activities

- Collect, normalize, and present weather, soil, and hydrologic data in EPA reports for pesticide regulation

- Develop software to perform hydrologic modeling and spatial analysis with ArcView GIS

- Author and support application for managing municipal septic systems

Publications

Journals

Matsunaga, A, Thompson, A, Figueiredo, R, Germain-Aubrey, CC, **Collins, M**, Beaman, RS, MacFadden, BJ, Riccardi, G, Soltis, PS, Page, LM, Fortes, JAB, "A Computational- and Storage-Cloud for Integration of Biodiversity Collections", in 2013 IEEE 9th International Conference on e-Science, Beijing, China, 2013, p. 78-87.

Ichikawa, K, U-Chupala, P, Huang, C, Nakasan, C, Liu, T-L, Chang, J-Y, Ku, L-C, Tsai, W-F, Haga, J, Yamanaka, H, Kawai, E, Kido, Y, Date, S, Shimojo, S, Papadopoulos, P, Tsugawa, M, **Collins, M**, Jeong, K, Figueiredo, RJ, Fortes, JAB, "PRAGMA-ENT: An International SDN testbed for cyberinfrastructure in the Pacific Rim", Concurrency and Computation: Practice and Experience, vol. 29, no. 13, 2017.

Proceedings

Collins M, Nicolson N, Poelen J, Thompson A, Hammock J, Thessen A (2017) "Building Your Own Big Data Analysis Infrastructure for Biodiversity Science". Proceedings of TDWG 1: e20161. https://doi.org/10.3897/tdwgproceedings.1.20161

Posters

Collins M, Poelen J, Thompson A. "Whole-dataset Analyses Using Apache Spark". Poster presented at: Biodiversity Information Standards Conference (TDWG). 2015 Sep 28-Oct 1; Nairobi, Kenya.

Collins M, Poelen J, Thompson A. "Updates on Whole-Dataset Analyses Using Spark and the GUODA Data Service". Poster presented at: 31st Annual Meeting 2016 of the Society for the Preservation of Natural History Collections (SPNHC). 2016 Jun 20-25; Berlin, Germany.

Yeole G, Sahdev S, **Collins M**, ThompsonA, Dikow R, Frandsen P, Orli S, Figueiredo R. "A Pipeline for Processing Specimen Images in iDigBio - Applying and Generalizing an Examination of Mercury Use in Preparing Herbarium Specimens using Neural Networks". Poster presented at: Biodiversity Information Standards Conference (TDWG). 2017 Oct 2-6; Ottawa, Canada.

Presentations

Paul D, Teal T, **Collins M**. Data Carpentry: "One Comprehensive Model for Teaching Biodiversity Informatics Data Management, Research Skills, and Training Instructors", in Biodiversity Information Standards Conference (TDWG), Nairobi, Kenya.

Collins M, Paul D. "Accessing Digital Collections Data Sources for Research: A Tour of iDigBio Data Services", in Island Biology 2016, II International Conference on Island Evolution, Ecology, and Conservation, University of the Azores at Angra do Heroísmo, Terceira Island, Azores, Portugal, 2016.

Collins M, "GUODA: A Unified Platform for Large-Scale Computational Research on Open-Access Biodiversity Data", in Biodiversity Information Standards (TDWG) 2016 Annual Conference, Santa Clara de San Carlos, Costa Rica, 2016.

Collins M, "Mining Whole Museum Collections Datasets for Expanding Understanding of Collections with the GUODA Service", in 31st Annual Meeting 2016 of the Society for the Preservation of Natural History Collections (SPNHC), Berlin, Germany, 2016.

Collins M, "Demo: Text Mining Whole Museum Datasets for Expanding Understanding of Collections with the GUODA Service", in 31st Annual Meeting 2016 of the Society for the Preservation of Natural History Collections (SPNHC), Berlin, Germany, 2016.

Collins M, Poelen J, Thessen A, Thompson A, Hammock J. "jupyter.guoda.bio: Hosted Jupyter Notebooks with Biodiversity Datasets for Reproducible Research in R and Python", in 32nd Annual Meeting 2017 of the Society for the Preservation of Natural History Collections (SPNHC), Denver, Colorado, 2017

Collins M, Nicolson N, Poelen J, Thompson A, Hammock J, Thessen A. "Building Your Own Big Data Analysis Infrastructure for Biodiversity Science", in Biodiversity Information Standards Conference (TDWG), Ottawa, Canada, 2017.

Conferences and Workshops

Attendee, O'Reilly Open Source Convention, 2006

Attendee, Large Installation System Administration, 2008

Attendee, Southeast Linux Fest, 2011

Booth Attendee, Super Computing, 2011

Booth Attendee, Super Computing, 2012

Attendee, Collaborative IT Workshop, 2014

Helper, Data Carpentry Workshop National Evolutionary Synthesis Center, 2014

Instructor, Data Carpentry Workshop Integrated Digitized Biocollections, 2014

Attendee, Advancing Digitization of Biodiversity Collections Summit, 2014

Attendee, Quantitative Biology Education Summit, 2015

Organizer, Participant, Hackathon on iDigBio APIs/Services and Interoperability, 2015

Instructor, Software Carpentry Workshop University of Miami, 2015

Instructor, Software Carpentry Workshop University of South Florida, 2015

Instructor, Data Carpentry Workshop Multimedia University of Kenya, 2015

Presenter, Biodiversity Information Standards Conference (TDWG), 2015

Invited Speaker, International Workshop on Building Collaboration in Biodiversity Informatics, 2015

Attendee, Pacific Rim Applications and Grid Middleware Assembly PRAGMA29, 2015

Helper, Carpentry Instructor Training University of Florida, 2016

Attendee, Pacific Rim Applications and Grid Middleware Assembly PRAGMA30, 2016

Organizer, Instructor, Software Carpentry Workshop University of Florida, 2016

Presenter, The Society for the Preservation of Natural History Collections Annual Meeting, 2016

Symposium Chair, Presenter, "iDigBio Workshop", International Conference on Island Evolution, Ecology, and Conservation, 2016

Organizer, Instructor, Software Carpentry Workshop University of Florida, 2016

Organizer, Data Carpentry Workshop University of Florida, 2016

Attendee, Pacific Rim Applications and Grid Middleware Assembly PRAGMA31, 2016

Attendee, Advancing Digitization of Biodiversity Collections Summit, 2016

Organizer, Instructor, Software Carpentry Workshop Centro de Transferencia Tecnológica y Educación Continua, 2016

Symposium Chair, Presenter, "'Big Data Analysis Methods and Techniques as Applied to Biocollections", Biodiversity Information Standards Conference (TDWG) 2016

Organizer, Instructor, Software Carpentry Workshop University of Florida, 2017

Organizing Committee, Smart Cities Student Hackathon, 2017

Host Committee, Pacific Rim Applications and Grid Middleware Assembly PRAGMA32, 2017

Helper, Carpentry Instructor Training University of Florida, 2017

Organizer, Instructor, Software Carpentry Workshop University of Florida, 2017

Helper, Data Carpentry Workshop University of Florida, 2017

Presenter, The Society for the Preservation of Natural History Collections Annual Meeting, 2017

Organizer, Instructor, Software Carpentry Workshop University of Florida, 2017

Organizer, Data Carpentry Workshop University of Florida, 2017

Organizer, Instructor, Data Carpentry Workshop Canadian Museum for Nature, 2017

Symposium Chair, Presenter, "Using Big Data Techniques to Cross Dataset Boundaries - Integration and Analysis of Multiple Datasets", Biodiversity Information Standards Conference (TDWG), 2017

Organizing Committee, Computable Evolutionary Phenotype Knowledge: a Hands-on Workshop, 2017

Service

Advisor, UF Data Science and Informatics student organization

Founder, UF Carpentry Club

Software Carpentry instructor mentor, round 1 (Africa), round 2 (US)

Certifications

Software and Data Carpentry Instructor

Additional Qualifications

Experienced with RedHat Enterprise Linux, CentOS, Ubuntu, OpenSolaris, Windows Server, TCP/IP networks, firewalls and NAT, proxy servers, load balancers, software defined networking, DNS, IPMI, PXE, SNMP, Apache, Lighttpd, MySQL, PostgreSQL, Bind, Postfix SMTP server, Zimbra, Git, Subversion, Redmine, Drupal, Zabbix, Foreman, Puppet, Salt, configuration management, PHP, Python, R, Bash, Java, MATLAB, Markdown, Jupyter Notebook, Riak, Elasticsearch, Cloudera, Spark, Hadoop, Ceph, VMware Vcenter and ESX, Citrix XenServer, NFS, ZFS, Active Directory, Windows Terminal Server, IBM fibre channel SAN, IBM blade centers, Dell blade centers, iDataPlex, Cisco, Dell PowerConnect, Brocade, Pica8, Force10.

Github account at https://github.com/mjcollin