Victor Dibia

CONTACT

1101 Kitchawan Road, 10598, NY, USA

E-mail: victor.dibia@gmail.com
Website: http://www.victordibia.com
Phone: +9146454059

RESEARCH INTERESTS

My research interests are in Human Computer Interaction, Computational Social Science and AI. I employ mixed research methods (experiments, rapid prototyping, interviews, surveys, usability studies and panel data analysis) in addressing questions related to interaction design for applied AI systems, interface design for wearables and behavior within online platforms.

EDUCATION

PhD Information Systems — August 2012 — May 2016

City University of Hong Kong

Dissertation Title: Essays on Stakeholder Outcomes in Online Crowdsourcing Contests
CGPA: 3.76/4.0.

Within my PhD dissertation, I provide one of the earliest analyses on the motivations for developer participation in incentivized crowd sourcing contests, how contest parameters shape contribution behavior and provide a framework for understanding the problem solving paradigm within these contests.
A profound finding of this work includes empirical results which show that the number of prize categories offered in a contest has a stronger effect on contribution behavior compared to the overall size of the prize pool. As a growing number of large corporations begin to explore partnerships with crowds in creating solutions (worth millions of dollars), this work provides practical guidelines on how to design these contests in order to maximize contributions, how to ensure the entire process is sustainable and how to model the problem solving process for better performance.

MSc Information Networking (MSIN) — Aug 2009 — May 2011

Carnegie Mellon University Pittsburgh USA

Thesis Title: Efficient Verification of Integrity and Authenticity of Web Resources Using Identity Based Cryptography (IBC): A RESTful Web Services Implementation
Cumulative GPA of 3.67/4.0

In this thesis, I propose and explore an alternative to conventional Public Key Infrastructure (PKI) using Identify Based Cryptography (IBC). PKI are vital as they help facilitate the secure electronic transfer of information for a range of network activities such as e-commerce, internet banking and confidential email. This work provided one of the earliest concrete implementation of a web based infrastructure for IBC that did not require any modification to web protocols and was fully integrated with the XML digital signature standard.

BSc (Hons) Computer Science (Engineering Technology) — Sep 2004 — Jun 2008

Babcock University

Thesis Title : Network Power Sharing Device: Power Sharing Via USB to Power Port with Output Voltage/Current 17v-19v/4A
Cumulative GPA of 4.64/5.0 (First Class Honors Division)

This work explored the design of a hardware device that enabled charging other medium to large devices using USB power. This work represents one of the earliest exploration of USB as both a power source and sink for computing devices. In several ways, this work represents one of the preludes to the widely used USB-C standard found in all mobile devices today.

LIST OF PUBLICATIONS

SELECTED JOURNAL ARTICLES

- Christian Wagner, **Victor Dibia** (2013), "Exploring the Effectiveness of Online Role-Play Gaming In the Acquisition of Complex and Tacit Knowledge", Issues in Information Systems, 14, 2, pp. 367-374.

SELECTED CONFERENCE PAPERS

- Jeffrey Kephart, **Victor Dibia**, Jason Ellis, Biplav Srivastava, Kartik Talamadupula and Mishal Dholakia, "A Cognitive Assistant for Visualizing and Analyzing Exoplanets", Thirty-Second AAAI Conference on Artificial Intelligence (AAAI-18) February 2–7, 2018 New Orleans, Lousiana, USA. [**Best technical demonstration award at AAAI 2018**].
- **Victor Dibia**, Maryam Ashoori, Aaron Cox, Justin Weisz (2017), "TJBot: An Open Source DIY Cardboard Robot for Programming Cognitive Systems", Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems.
- **Victor Dibia** (2016) "FOQUS: A Smartwatch Application for Individuals with ADHD and Mental Health Challenges" The 18th International ACM SIGACCESS Conference on Computers and Accessibility, Reno Nevada.
- **Victor Dibia**, Shari Trewin, Maryam Ashoori and Thomas Erickson (2015) "Exploring the Potential of Wearables to Support Employment for People with Mild Cognitive Impairment" , The 17th International ACM SIGACCESS Conference on Computers and Accessibility, Lisbon Portugal.
- Zhang Jun, **Victor Dibia**, Alexey Sodnomov, Paul Lowry (2015), "Understanding the disclosure of private healthcare information within online Quantified Self 2.0 platforms", 19th Pacific Asia Conference on Information Systems PACIS 2015, Marina Bay, Singapore.
- **Victor Dibia**, Christian Wagner (2015), "Success Within App Distribution Platforms: The Contribution Of App Diversity And App Cohesivity", Hawaii International Conference on System Sciences, Hawaii , USA.
- **Victor Dibia** (2014), "An Affective, Normative and Functional Approach to Designing User Experiences for Wearables", SIGHCI 2014, International Conference on Information Systems (Pre-ICIS Workshop), Association of Information Systems, Auckland, New Zealand.
- Paul Lowry **Victor Dibia** , Lele Kang, Chazwan Hassna, Shaobo Wei (2014), "How Does Information Technology Capability Enable Digital Transformation? Considering : The Mediating Roles of Agility", JAIS Theory Development Workshop, International Conference on Information Systems, Association of Information Systems, Auckland, New Zealand.
- **Victor Dibia** (2014), "On the User-centric Evolution of Mobile Money Technologies in Developing Nations: Successes and Lessons.", Americas Conference on Information Systems.
- Oludele Awodele, **Victor Dibia**, Oghenerukwve Onoruvie, Sharon Okoruwa (2008), "Service Provisioning on Mobile Devices via Bluetooth in a Localized Setting", Informing Science & IT Education Conference, Varna, Bulgaria, 08, 27-37.

WORKING PAPERS

- **Victor Dibia** , Zhang Jun, Alexey Sodnomov, Paul Lowry , "Motivating Conversions from Interest to Contribution in Crowdsourcing Contests: An Empirical Study in the Software Industry", Under Review.
- **Victor Dibia** "Would I do it Again? A Justice and Satisfaction Approach to Predicting Repeat Participation in Online Software Crowdsouring Tasks", In Preparation for Submission.
- **Victor Dibia,** Christian Wagner**, "**An emotional-informed model of the problem solving process within crowdsourcing contests – a qualitative perspective**",** In preparation of submission.
- **Victor Dibia**, Christian Wagner "The Fairness Roller Coaster: A deeper Look at the Phases of Software Crowdsourcing Contests" , In preparation of submission.

EMPLOYMENT

IBM Research — April 2017 — Present

Research Staff Member

I work with an interdisciplinary team and lead efforts to research, design and develop solutions in the IoT, wearable and applied AI domain.

- Conduct research in the area of democratizing AI using maker kits (TJBot). I lead technical software development for an open source project (TJBot). Contributed to the design and implementation of an embodied AI application that helps Astrophysicists interact with exoplanet datasets. Exploring research on ways to reduce the compute and time costs required to integrate AI models in designing novel interactions.
- Conduct research in the area of designing composite (IoT ,wearable, machine learning) solutions for visually impaired individuals. I am currently leading efforts to develop neural networks and design wearable apps to assist individuals with impaired vision.

IBM Research — April 2016 — April 2017

Post Doctoral Researcher

I led efforts to research, design and develop multi-modal interactions for cognitive objects and environments

- I was one of three team members that created the TJBot Project - A maker kit designed to help democratize artificial intelligence.
- Designed, implemented and deployed an interactive room scale application that harnesses a set of IBM Watson AI services in enabling users query large data sets. Specifically, the Enron 2.0 application I created was deployed on a 40 ft wall and allowed users query (by date, concept, author personality) an email dataset of over 500,000 emails with appropriate visualizations.

IBM Research — May 2015 — September 2015

Summer Research Fellow

Worked with the Cognitive Environments Lab to research aspects of wearables for health and cognitive computing.

- Rapid prototyping of web (MongDB, Node.js) and mobile (android) apps that stream data from wrist wearable devices (Samsung Gear, Microsoft Band), conducting user studies and writing up a research paper.
- Designed and implemented wearable application to infer user engagement and participation within the context of meetings and across an entire day. The leveraged machine learning models in tracking metrics such as typing activity, general motion,and pseudo location.
- Conducted research on privacy concerns related to wearable device use in the enterprise.

- Was part of a team that designed an instrumented cognitive chair for supporting homecare for individuals with Parkinson's disease.

Department of Information Systems, City University of Hong Kong — August 2012 — Present

Research and Teaching Assistant

I worked as a research and teaching assistant at City University.

- Conduct research in the area of wearable device design, and online platforms.
- Course and lab instructor for graduate level courses.

Denvycom — Jan 2012 — Sept 2012

Founder / Lead Developer

A web and mobile startup company focused on building products for Africa and emerging economies. As founder/lead developer, I was in charge of

- Client requirement elicitation and problem specification.
- Product design , development and prototyping.
- Managing a small team of developers throughout entire product lifecycle, from ideation to market deployment.

Won multiple awards from Nokia, Samsung and Blackberry - "Best designed app" award from Samsung , and "Best Conference Mobile App" from Blackberry.

MIT Global Startup Labs — Jun 2012 — Aug 2012

Lead Technical Instructor

MIT Global Startup Labs is a multidisciplinary group of MISTI (MIT International Science and Technology Initiatives) that promotes development in emerging regions by cultivating young technology entrepreneurs. AITI develops curriculum materials, software technologies, platforms, and networks that enable undergraduate students in emerging regions to innovate in the area of information and communication technologies (ICTs).

- Lecturing final year undergraduate students on web and mobile technologies. (Java, Android , Python, Django, Google App Engine).
- Organizing hands-on lab sessions, providing feedback and grading of student solutions.
- Supervising student projects and guiding them in building apps at the end of the program.

At the end of the 6 week course, students reported a 30% increase in technical skillset (based on self assessments) and 100% said they were more likely to embark on tech-entrepreneurship in the near future. Prepclass.com.ng is a an award winning and funded startup that emerged from this program.

Athens Information Technology Building, B7, 19,5km Markopoulo Ave, Peania, Athens Greece — May 2011 — Sept 2011

Research Assistant, Innovation and Management Lab.

Research and prototype development in the areas of user generated mobile games, business applications of gaming, crowd sourcing models and game development engines/platforms.

Piwik Analytics — Feb 2010 — May 2011

Open Source Developer

PIWIK is the largest open source Web Analytics Project (3 Million+ downloads) .

- Implemented and tested a CORE Module of the Piwik Open Source Web Analytics Project - the SEO widget. This widget displays SEO rankings for the currently selected website and allows the SEO to fetch same SEO stats for other websites straight from the PIWIK interface.
- Worked with other members of the Piwik team to improve code formatting, code testing and upgrade to support new versions of PHP.

My design and architecture for the widget has been largely unchanged over multiple rounds of reviews and is included in the core version of Piwik serving millions of users.

MEMBERSHIPS / CERTIFICATIONS

MEMBERSHIPS

- Member: Association of Computing Machinery (ACM)
- Member: Institute for Electrical Electronics Engineers (IEEE). No. 80124140 (2004 till Date).
- Member: Hong Kong Computer Society (HKCS)

CERTIFICATIONS

- Google Certified Professional - Data Engineer. (Nov 2017)
- Google Certified Professional - Cloud Architect (Oct 2017)
- Microsoft Certified Professional (Windows Server 2003, Windows Network Infrastructure) MCP ID#6322896 (Jun 30, 2008).
- Cisco Certified Networks Associate (CCNA) (May 15 2008) .
- CompTIA Network + .Career ID No. COMP001006796403 (Dec 19 2007) .
- Information Systems Audit and Control Association Certified Information Systems Auditor (CISA), Exam Passer (Dec 10,2006) .

AWARDS/HONORS/GRANTS

ACADEMIC AWARDS

- **[February 2018] Best Technical Demonstration at AAAI 2018**
  My paper (with co-authors) "A Cognitive Assistant for Visualizing and Analyzing Exoplanets" won the **best technical demonstration award at AAAI 2018**. AAAI is ranked as one of the premier conference venues for machine learning and AI.

- **[October 2014] Pacific Telecommunications Council Young Scholar Program Award.**
  A prestigious global award presented to outstanding young scholars (advanced PhD candidates, Post-Doctoral Researchers and Assistant Professors) in the field of information and communication technologies (ICTs). The award included a funded trip to attended the PTC `15 conference and an oral presentation on my research regarding interface design for wearable devices.

- **[January 2014] Microsoft Imagine Cup Project Blueprint Finalist**
  Honorable mention as a top 20 global finalist for work on designing a cloud-based platform for distributing educational content in developing regions.

- **[May 2012] Hong Kong PhD Fellowship Scheme.**
  Awarded the Hong Kong PhD fellowship Scheme (HKPFS) to cover a PhD in Information Systems at City University of Hong Kong, valued at HK$240,000 per year Only 4% of applicants from around the world are selected yearly after a rigorous selection process by an international selection panel. A highly prestigious global award by the Hong Kong Government Research Grants Council designed to attract the best PhD candidates to conduct research at the highly-ranked universities in Hong Kong.

- **[September 2012] Chow Yei Ching Entrance Scholarship awarded by the School of Graduate Studies, City University of Hong Kong.**
  Valued at HK67,296 per year, the award is highly prestigious and typically obtained by being in the top 5% of students based on academic merit.

- **[August 2009 – May 2011] Carnegie Mellon University MSc Scholarship**
  Awarded a partial scholarship (80% tuition covered) by INTRACOM to attend the Carnegie Mellon University Masters in Information Networking Program.

- **[June 2008] Outstanding Graduating Student Award (Undergraduate)**
  Awarded to Top 1% of graduating students from the Department of Computer Science and Mathematics, Babcock University.

- **[October 2007] IEEE Student Branch Contest Finalist**
  I served as Vice President and Webmaster for the IEEE Babcock University Student Branch and my entry in the Global Student Branch contest was ranked among the Top 10 finalist.

- **[March 2005] Academic Excellence Award**
  Awarded the Mobile Producing Nigeria Undergraduate Merit Scholarship awarded to the best performing students across all Universities for four years.

INDUSTRY AWARDS

- Awards from IBM Research
  - **[December 2017] IBM Open Source Award.**
  - **[November 2017] Managers Choice Award "Application of Neural Networks in Hand Tracking"**
  - **[August 2017] First Patent File Achievement Award**
  - **[March 2017] First Patent Application Achievement Award**
  - **[June 2017] Managers Choice Award "Curating the TJBot Ecosystem"**
  - **[June 2017] Managers Choice Award "Outstanding Technical Contributions"**

GRANTS

- **[August 2013] Co-Principal Investigator, Research in Mobile Content Use and Development in Nigeria.**
  Co-Principal investigator for a subsection of a grant from the Ford Foundation to conduct surveys aimed at understanding mobile content use in development countries. Ford Foundation Grant Number 0135-0457, USD $8300.

PROFESSIONAL SERVICES

INVITED REVIEWS

- Reviewer ACM CHI 2018
- Reviewer ACM IDC 2018
- Reviewer ACM DIS 2018
- Reviewer International Journal of Human-Computer Interaction (IJHCI) 2017
- Reviewer International Conference on Information Systems (ICIS) 2013, 2014, 2015
- Reviewer Hawaii International Conference on System Sciences (HICSS) 2014, 2015
- Reviewer Pacific Asia Conference on Information Systems (PACIS) 2014, 2015
- Reviewer European Conference on Information Systems (ECIS) 2015
- Reviewer Americas Conference on Information Systems (AMCIS) 2014, 2015
- Reviewer Meheroo Jusawalla Research Prize Award, 2016

COMPLETE LIST OF PATENTS

PATENTS

- **A System and Method for Automated Summarization based on Physiological Data Annotations. Docket No. YOR920161396US1, Patent Id. 93558366 . Filed Feb 2017**

  In this patent, methods and system for generating an automated summary of a user generated dataset based on physiological data annotation are disclosed. The system

includes a module for aggregating physiological data, a scoring module that annotates generated data and a summarizer that generates a digest based on the scored annotations.

- **A System and Method for Estimating Indoor/Outdoor location of an individual based on UV data. Docket No. YOR920161791US1. Patent Id. 92677134. Filed March 2017.**

  In this patent, application methods and systems for determining the pseudo location of a user are disclosed. The method includescollecting, by a processing device, ultraviolet (UV) sensor data from a UV sensor of a user device of the user.The method further includesanalyzing, by the processing device, the UV sensor data by comparing the UV sensor data to a UV profile for a geographic area.

- **A System and Method for Detecting Human Typing Activity for engagement assessment using Smartwatch Inertia + audio Sensors. Docket No YOR820162818US01, Patent Id 94508574. Filed November 2017**

  In this patent application methods and systems for assessing typing activity were disclosed. Input from at least one wearable device is analyzed using machine learning models to infer a range of typing activities that can be generalized to enable other cognitive actions.

LIST OF CONFERENCE PRESENTATIONS

SELECTED INDUSTRY PRESENTATIONS

- [Oral Presentation and Workshop] “Embedding Intelligence in Everyday Objects using IBM Watson Services and TJBot” SXSW 2017. SXSW is one of the largest conferences covering areas such as technology, entertainment and film with over 421,900 attendees at the 2017 SXSW conference.
  Invited to give a talk and run a workshop at the event.

- [Oral Presentation and Workshop] “Embedding Intelligence in Everyday Objects using IBM Watson Services and TJBot” Interconnect Conference 2017. A leading industry conference organized by IBM with over 20,000 participants in the cloud and cognitive technology domain.
  Invited to give a talk and run a workshop at the event.

- [Oral Presentation and Workshop] “Embedding Intelligence in Everyday Objects using IBM Watson Services and TJBot” Web Summit 2017. Annual technology conference with over 60,000 attendees at the 2017 event. Invited to give a talk and run a workshop at the event.

- [Keynote] “Democratizing Cognitive Technology Innovation using Maker Kits”,Regional STEM Academy 2017. I was invited to give the keynote presentation at the 2017 Greater Southern Tier Stem Academy.

- [Talk] “Best Practices in Designing Interfaces for Wearables”, Tizen Developer Summit 2014.Invited to give a talk at the Tizen Developer Summit Shanghai 2014.

- [Panel] “Built for mobile and innovation in emerging markets”, 2013 Blackberry Live Conference.Invited to speak on a panel discussing the mobile ecosystem in developing countries.-

SELECTED ACADEMIC PRESENTATIONS

- [Oral Presentation and Demo] Victor Dibia, Maryam Ashoori, Aaron Cox, Justin Weisz (2017), "TJBot: An Open Source DIY Cardboard Robot for Programming Cognitive Systems", 2017 CHI Conference on Human Factors in Computing Systems.

- [Poster Presentation] Victor Dibia (2016) "FOQUS: A Smartwatch Application for Individuals with ADHD and Mental Health Challenges" The 18th International ACM SIGACCESS Conference on Computers and Accessibility, Reno Nevada.

- [Poster Presentation] Victor Dibia, Shari Trewin, Maryam Ashoori and Thomas Erickson (2015) "Exploring the Potential of Wearables to Support Employment for People with Mild Cognitive Impairment", The 17th International ACM SIGACCESS Conference on Computers and Accessibility, Lisbon Portugal.

- [Oral Presentation] Zhang Jun, Victor Dibia, Alexey Sodnomov, Paul Lowry (2015), "Understanding the disclosure of private healthcare information within online Quantified Self 2.0 platforms", 19th Pacific Asia Conference on Information Systems, Marina Bay, Singapore.

- [Oral Presentation] Victor Dibia, Christian Wagner (2015), "Success Within App Distribution Platforms: The Contribution of App Diversity and App Cohesivity", Hawaii International Conference on System Sciences, Hawaii, USA.

- [Oral Presentation] Victor Dibia (2014), "On the User-centric Evolution of Mobile Money Technologies in Developing Nations: Successes and Lessons.", Americas Conference on Information Systems, USA.

- [Workshop Presentations] Victor Dibia (2014), "An Affective, Normative and Functional Approach to Designing User Experiences for Wearables", SIGHCI 2014, International Conference on Information Systems (Pre-ICIS Workshop), Association of Information Systems, Auckland, New Zealand.

- [Workshop Presentations] Paul Lowry Victor Dibia , Lele Kang, Ghazwan Hassna, Shaobo Wei (2014), "How Does Information Technology Capability Enable Digital Transformation? Considering the Mediating Roles of Agility ", JAIS Theory Development Workshop, International Conference on Information Systems, Association of Information Systems, Auckland, New Zealand.

RESEARCH IMPACT

SELECTED RESEARCH PROJECT IMPACT

- **TJBot**
  I have led technical design and implementation for TJBot - An open source DIY kit designed to help low to medium skill users prototype embodied cognitive applications. My responsibilities include also include design and implementation of a feature roadmap for the project and curating a community on platforms like GitHub and Instructables.
  Impact: Based on Google news search, there have been 107 News Articles citing the TJBot Project, ~450 monthly users based on download statistics and over 12 schools running pilot projects where TJBot is used for STEM education. We estimate over 8000 of these kits were used in the first 8 months of its release.

- **Piwik Analytics [Now Matomo Analytics]**
  I am a contributor to Piwik Analytics Project and notably implemented the first version of the SEO widget which displays key Search Engine Optimization metrics in the dashboard. Piwik is the leading open-source analytics platform that offers 100% data ownership, user privacy protection, user-centric insights, and a fully customizable and extensible programming interface.
  Impact: The Piwik project has over 8500 stars and 1500 forks on Github, has been

downloaded over 3.4 millions times and is currently used by both individuals and large companies such as TMobile, Wikimedia Deutschland, Forbes, Sharp and Oxfam Deutschland. My widget within this tool has now been used by millions of users and thousands of enterprises

SOFTWARE PROFICIENCY

- Programming Language Proficiency : Java, C#, C, Python, HTML5, ASP, PHP, JSP, AJAX, Javascript, Jquery, XML, JSON
- Platform Proficiency : Tensorflow, Nodejs, Meteorjs, D3.js, Oblong Gspeak, Tizen Wearable, Windows Phone, Google Android, Balckberry 10
- Statistisc/Data Analysis - R, SPSS, MATLAB
- Graphic Designing :Adobe Fireworks, Photoshop, Pencil, Sketch
- Development Tools : Adobe Dreamweaver , Adobe Fireworks, Eclipse, Netbeans, Visual Studio
- Web Analytics : Google Analytics, Piwik Analytics.
- Web Hosting : Cpanel 11, PHP web server configuration console.
- Research Methods : Surveys, interviews, lab observation, focus groups, usability studies, usability benchmarking, think-aloud protocol, field testing, wireframes, card sorting, panel data analysis.