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Fred Paul Mark Jjunju (skype: jjunjufred)

Curriculum vitae

Dr Jjunju is a Fellow of the UK higher Academy, active member of the Royal Society of Chemistry, the IEEE and IET with 10+ years' experience of Software engineering and chemical sensor design, instrumentation and application to environmental monitoring and personal hygiene; with a BSc in IT from Makerere University, MSc in Electrical Engineering (Analytical Instrumentation) from King Abdullah University of Science and Technology; PhD degree in Electrical and Electronic Engineering from the University of Liverpool (where he is currently a Lecturer and Research Associate).

Research Interests

❖ Software Engineering, Virtual/Immersive Reality, Artificial intelligence (Machine Learning and Deep learning theory); Data analytics and Big Data, Bioinformatics (Mass Spectrometry biomarker analysis), Internet of Things (IoT) and Cloud Computing (Google, Amazon Web Services, Microsoft Azure platforms), Cyber Security.

Education and Training

❖ **Fellow Higher Education Academy (Certificate in Leaning and Teaching in Higher Education; Recognition reference: PR156476, Date of recognition 12/11/2018),** The Academy University of Liverpool, UK.

❖ **PhD** (**June 2016**)**, Electrical Engineering and Electronics**, School of EEE and Computer Science, University of Liverpool, UK; (Dissertation title: "*In-Situ* Mass Spectrometry Analysis under Ambient Conditions").

❖ **MSc. Electrical Engineering (2010),** King Abdullah University of Science and Technology (KAUST), Jeddah, Saudi Arabia; (Dissertation title: "DNA Pattern Recognition using Artificial intelligence Machine learning").

❖ **BSc. Information Technology (2009),** School of Computing and Information Technology Makerere University Uganda.

❖ **Cisco Certified Network Associate** (**CCNA, 2005**) **and Cisco Certified Network Professional Switching and Routing** (**CNNP, 2006**), Cisco Networking Academy School of Computing and Information Technology Makerere University, Uganda.

Work Experience

❖ **2017 – Date : Lecturer and Module Coordinator;** School of EE&E and Computer Science University of Liverpool, UK.

Roles:

✓ **Teaching Responsibilities:** Teacher and Module Coordinator: (ELEC362 - APPLICATION DEVELOPMENT WITH C++ (15 credits) and ELEC129 - Introduction to programming in C (15 credits), And Software engineering module.

❖ **2016-date, Lead Research Fellow/Associate for the EPSRC project (Grant No: EP/P004040/1) 'Context Aware network architectures for Sending Multiple Senses (CASMS),** School of EE&E and Computer Science University of Liverpool, UK

Roles:

✓ Establish a unique facility in the UK that employs dedicated high-speed network links to combine research canters in virtual and immersive reality in order to open up new capability for research into distributed VR/AR systems, and particularly to investigate how we can embed other sensory channels such as touch and smell into these applications

and remotely access them. Use ambient mass spectrometry to record and profile smell patterns using AI and machine learning.

✓ Investigation of strategies to provide highly actuate timing for delay-sensitive HCI using multi-sensory channels, high-performance computer platforms for distributing such media-rich applications as well as the applications themselves such as advanced manufacturing and design for the automotive and avionics industries, and in assistive technologies.

❖ **06-2013 - Date, System Development Engineer, Q-Technologies Ltd, UK**

Roles:

✓ Design, implement and optimisation of innovative analytical instruments for point of care applications, (food safety, airport security, healthcare etc..

✓ |Develop portable Mass Spectrometer systems and novel and novel analytical methods for environmental, security and biomedical applications.

✓ Sensor modelling, design, simulation and fabrication of mass spectrometer sub-systems (i.e. Ion source, Mass analyser, Ion Optics, Ion detector and software control systems).

✓ AI Data analytics software development for data analysis and Processing.

❖ **2011 - 2013, Research Associate, Aston Labs, Purdue University Centre for Analytical Instrumentation, West Lafayette, Indiana, USA. Roles:**

✓ Part of a team that developed a bench-top miniature mass spectrometer system Mini 12, (**System integration, and Software development)**, with ambient ionization source and tandem mass spectrometry capabilities. This instrument was developed as a self-contained system to produce quantitative results for unprocessed samples of small volumes including non-volatile analytes.

✓ Ambient Ionization Mass Spectrometry and neural software computing engine for data analytics and visualisation.

✓ Desorption Atmospheric Pressure Chemical Ionization (DAPCI) - Used DAPCI ambient ionization in the characterization of the various petroleum constituents (hydronaphthalenes, thiophenes, alkyl substituted benzenes, pyridines, fluorenes, and polycyclic aromatic hydrocarbons) under ambient conditions without sample preparation.

❖ **09 - 08-20011, Teaching Assistant: Programming Methodology & Abstractions, KAUST, KSA.**

Roles:

✓ Taught laboratory sessions 1 hour per week.

✓ Graded tests, exams and assignments.

❖ **01-2008- 09- 2009, Network Engineer, Commonwealth Business Council, Uganda office.**

✓ Coordinated special projects including network related wiring plans.

✓ Anticipated communication and networking problems and implemented preventative measures.

✓ Assisted in planning, coordinating and consulting with vendors and clients for hardware/software Responsible for various tasks within projects such as: conducting site surveys, fee bids, load analyses.

✓ I was offered a scholarship with a view to future employment.

✓ UKRI Innovate UK Smart Agritech solutions Stage 1- Prototyping: "Soilysis: SMART 4.0 technology handheld soil composition testing system" Funded 2021 June, Value £250, 000 (Funded (Role Co-I).

✓ RAEng Engineering for Development Research Fellowship (2020/21 round): "Water Quality AI: For Real-Time Monitoring of Water Pathogens in Low-Middle-Income-Countries" (Value £625,826.7), Role: PI.; Under Review 01/04/2021,

❖ **Publications**

✓ **Peer-reviewed Journal (Google Scholar: https://scholar.google.com/citations?user=dDkQ4Y8AAAAJ&hl=en)**

1. **Jjunju P. M. Fred,** Badu-Tawiah, A. K., Li, Anyin, Roqan. Iman and Cooks, R. G; "Hydrocarbon Analysis using Desorption Atmospheric Pressure Chemical Ionization", Int. J. Mass Spectrom. 345–347, 80-88 (2013).

2. **Jjunju P. M. Fred,** Maher S, Li A, Syed SU, Smith B, Heeren RM, Taylor S, Cooks RG. Hand-Held Portable Desorption Atmospheric Pressure Chemical Ionization Ion Source for in Situ Analysis of Nitroaromatic Explosives. Analytical Chemistry 2015 Sep 9; 87(19):10047-55.

3. Badu-Tawiah, A. K., Li, A., **Jjunju P. M. Fred** and Cooks. R. G; "Peptide Cross-Linking at Ambient Surfaces by Reactions of Nanosprayed Molecular Cations", Angew. Chem. Int. Ed., 51: 9417–9421 (2012).

4. **Jjunju P. M. Fred,** Abraham.K.Badu-Tawiah, Anyin Li, Iman. Roqan and R. Graham. Cooks; "Hydrocarbon Analysis by Desorption Atmospheric Pressure Chemical Ionization", Prepr.Pap.-Am. Chem. Soc., Div. Energy Fuels Chem. 2012, 57(2).

5. **Jjunju P. M. Fred,** Badu-Tawiah, A. K., Li, Anyin, Roqan. Iman and Cooks. R. G; "In-situ Analysis of Corrosion Inhibitors using a Portable Mass Spectrometer with Paper Spray Ionization", RCS Analyst, 2013, 138, 3740-3748.

6. Li, Anyin, **Jjunju P. M. Fred** and Cooks. R. G, "Nucleophilic Addition of Nitrogen to Aryl Cations: Mimicking Titan Chemistry", J. Am. Soc. Mass Spectrom. (2013) 24(11), 1745-1754.

7. S. Maher, **Jjunju P. M. Fred**, I. S. Young, B. Brkić and S. Taylor; "Membrane inlet mass spectrometry for in situ environmental monitoring", Spectrosc. Europe 26, (2), pp. 6-8 (2014).

8. **Jjunju P. M. Fred,** S. Maher, A. Li, H. C. Hsub, P. Wei, S. Taylor and R. G. Cooks; "Ambient analysis of nitrogen compounds in petroleum oil using desorption atmospheric pressure chemical ionization", Prepr. Pap.-Am. Chem. Soc., Div. Energy Fuels. 59, (2), pp. 753-755 (2014).

9. **Jjunju P. M. Fred**, S. Maher, A. Li, A. Badu, S. Taylor and R. G. Cooks; "Analysis of polycyclic aromatic hydrocarbons using desorption atmospheric pressure chemical ionization coupled to a portable mass spectrometer", **J. Am.** Soc. Mass Spectrom. 26, 271-280 (2015).

10. S. Maher, **Jjunju P. M. Fred**, and S. Taylor; "Colloquium: 100 years of mass spectrometry: Perspectives and future trends" Review. Modern. Physics. 87, 113-135 (2015).

11. Syed. Sarfaraz, Maher, Simon, Eijkel. Gert; **Jjunju P. M. Fred,** Taylor. Stephen, Heeren. Ron; "A Direct Ion Imaging Approach for the Investigation of Ion Dynamics in Multipole Ion Guides", Analytical Chemistry 2015, 87.7: 3714-3720.

12. Smith, Ray T, **Jjunju P. M. Fred**, and Simon Maher. "Evaluation of Electron Beam Deflections across a Solenoid Using Weber-Ritz and Maxwell-Lorentz Electrodynamics." Progress In Electromagnetics Research 151 (2015): 83-93.

13. **Jjunju P. M. Fred**, S. Maher, S. U. Syed, R. M. A. Heeren, S. Taylor and Badu-Tawiah, A. K; "Screening and Quantification of Aliphatic Primary Alkyl Corrosion Inhibitor Amines in Water Samples by Paper Spray Mass Spectrometry, Analytical Chemistry 2016 88 (2), 1391-1400.

14. Damon, Deidre D., Yosef S. Maher, Mengzhen Yin, **Jjunju P. M. Fred**, Iain S. Young, Stephen Taylor, Simon Maher, and Abraham K. Badu-Tawiah. "2D Wax-printed paper substrates with extended solvent supply capabilities allow enhanced ion signal in paper spray ionization." Analyst 141, no. 12 (2016): 3866-3873. DOI: 10.1039/C6AN00168H.

15. Simon. Maher, **Jjunju P. M. Fred**, S. Maher, S. U. Syed, R. M. A. Heeren, S. Taylor and Badu-Tawiah, A. K, "Direct Analysis and Quantification of Metaldehyde in Water using Reactive Paper Spray Mass Spectrometry", Nature Scientific reports, vol. 6, pp.35643, 2016, DOI: 10.1038/srep35643.

16. Smith, Ray T., **Jjunju P. M. Fred**, Iain S. Young, Stephen Taylor, and Simon Maher. "A physical model for low-frequency electromagnetic induction in the near field based on direct interaction between transmitter and receiver electrons." In Proc. R. Soc. A, vol. 472, no. 2191, p. 20160338. The Royal Society, 2016.

17. Smith B.L, **Jjunju P. M. Fred**, Taylor, S, Young. I.S and Maher, S, "Development of a portable, low cost, plasma ionization source coupled to a mass spectrometer for surface analysis", In SENSORS, 2016 IEEE (pp. 1-3), DOI: 10.1109/ICSENS.2016.7808673.

18. Maher Simon, Bastani. B, Smith. B, **Jjunju P. M. Fred,** Stephen Taylor, and Iain S. Young. "Portable fluorescent sensing array for monitoring heavy metals in water." In SENSORS, 2016 IEEE, pp. 1-3, 2016. DOI: 10.1109/ICSENS.2016.7808690.

19. Smith, B. L., Smith, N. A., Jjunju, F. P. M., Young, I. S., Vossebeld, J., Casse, G., , Stephen Taylor, and S. Maher. (2017). 50-Channel charge integrating faraday detector for characterization of ambient ions. In *2017 IEEE SENSORS* (pp. 1-3). IEEE.

20. Jjunju, F. P M., Giannoukos, S., Marshall, A., & Taylor, S. (2019). In-Situ Analysis of Essential Fragrant Oils Using a Portable Mass Spectrometer. International journal of analytical chemistry, Vol 2019, Article ID: 1780190 pg 11, https://doi.org/10.1155/2019/1780190

21. **Fred. P. M. Jjunju**, Deidre E. Damon, David Romero-Perez, Iain S. Young, Ryan J. Ward, Alan Marshall, Simon Maher, Abraham K. Badu-Tawiah; Analysis of Non-Conjugated Steroids in Water using Paper Spray Mass Spectrometry; Nature Scientific Reports, ***Accepted May 2020***.

22. *Ward, Ryan Joseph, **Fred P M Jjunju**, Elias J. Griffith, Sophie M. Wuerger, and Alan Marshall. "Artificial Odour-Vision Syneasthesia via Olfactory Sensory Argumentation." IEEE Sensors Journal 21, no. 5 (2020): 6784-6792.*

23. Lucky, Godswill, **Fred Jjunju**, and Alan Marshall. "A Lightweight Decision-Tree Algorithm for detecting DDoS flooding attacks." In 2020 IEEE 20th International Conference on Software Quality, Reliability and Security Companion (QRS-C), pp. 382-389. IEEE, 2020.

24. Sebastian John, Elias Griffith, David Swapp, Simon Julier, Iheanyi Caleb Irondi, ***Fred P M Jjunju,*** Ryan Ward, Alan Marshall, and Anthony Steed. "Consensus Based Networking of Distributed Virtual Environments." IEEE Transactions on Visualization and Computer Graphics (2021).

25. Friston, Friston, Sebastian, Elias Griffith, David Swapp, Caleb Lrondi, ***Fred P. M Jjunju***, Ryan Ward, Alan Marshall, and Anthony Steed. "Quality of Service Impact on Edge Physics Simulations for VR." IEEE Transactions on Visualization and Computer Graphics 27, no. 5 (2021): 2691-2701.

26. Marrinan, Thomas, and Michael E. Papka. "Real-Time Omnidirectional Stereo Rendering: Generating 360° Surround-View Panoramic Images for Comfortable Immersive Viewing." IEEE Transactions on Visualization and Computer Graphics 27, no. 5 (2021): 2587-2596.

27. **Jjunju P. M. Fred,** Ryan Ward, Elias Griffith, A. Marshall, "Wearable Portable Olfactory Display for Immersive Reality" (***Under Review, IEEE Sensors***) **2021**

28. Ryan J. Ward, Fred P.M. Jjunju, Isa Kabenge, Rhoda Wanyenze, Elias J. Griffith, Noble Banadda, Stephen Taylor and Alan Marshall,"FluNet: An AI-Enabled Influenza-like Warning System"; (***Under Review, IEEE Sensors***) **2021**

29. Fred P. M Jjunju, Ryan J. Ward, Elias J. Griffith, Caleb I. Irondi, Friston Sebastian, David Swapp, Anthony Steed and Alan Marshall ,"Rapid Detection of Phthalates in Essential oil Using Paper Spray Mass Spectrometry"(***Under Review, IEEE Sensors***) **2021.**

❖ **Patents**

30. Cooks, Robert Graham, Fred Paul Mark Jjunju, Anyin Li, and Iman S. Roqan. "Methods of analyzing crude oil." U.S. Patent 10,197,547, issued February 5, 2019.

31. **Jjunju P. M. Fred,** Ryan Ward, Elias Griffith, A. Marshall, "Odours Indexing using Mass Spectrometry for Immersive Reality" (***pending***) **2020.**

❖ **Peer Reviewed Conference Papers**

32. **Jjunju P. M. Fred**, Badu-Tawiah, A. K., Li, Anyin, Roqan Iman and Cooks, R. G., Hydrocarbon Analysis using Desorption Atmospheric Pressure Chemical Ionization, 60th American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, Vancouver, Canada (June 2012).

33. **Jjunju P. M. Fred**, Badu-Tawiah, A. K., Li, Anyin, Roqan Iman and Cooks, R. G., Hydrocarbon Analysis using Desorption Atmospheric Pressure Chemical Ionization, 244th American Chemical Society (ACS) National Meeting, Philadelphia, Pennsylvania (August 2012).

34. **Jjunju P. M. Fred**, Badu-Tawiah, A. K., Li, Anyin, Roqan Iman and Cooks, R. G., Hydrocarbon Analysis using Desorption Atmospheric Pressure Chemical Ionization, 19th International Mass Spectrometry Conference (IMSC), Kyoto, Japan(September 15 - 21 2012).

35. **Jjunju P. M. Fred**, Badu-Tawiah, A. K., Li, Anyin, Roqan Iman and Cooks, R. G., Hydrocarbon Analysis using Desorption Atmospheric Pressure Chemical Ionization, 3rd Asian and Oceanic Mass Spectrometry Conference (AOMSC-3), Kyoto, Japan (September 2012).

36. **Jjunju P. M. Fred**, Badu-Tawiah, A. K., Li, Anyin, Roqan Iman and Cooks, R. G., Hydrocarbon Analysis using Desorption Atmospheric Pressure Chemical Ionization, IET/IOP annual meeting University of Liverpool, UK (February 20 2012).

37. **Jjunju P. M. Fred,** Badu-Tawiah, A. K., Li, Anyin, Roqan Iman and Cooks, R. G., Analysis of Corrsoion Inhibitors using a Portable Mass spectrometer with Paper Spray Ionization, 6Ith American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, Minneapolis Minnesota, USA (June 9-13 2013).

38. **Jjunju P. M. Fred,** Badu-Tawiah, A. K., Li, Anyin, Roqan Iman and Cooks, R. G., Analysis non-basic nitrogen compounds in petroleum oil using desorption atmospheric pressure chemical ionization, 245th American Chemical Society (ACS) National Meeting, Indianapolis, USA (September, 2013).

39. Li, Anyin, **Jjunju P. M. Fred,** and Cooks, R. G, Nucleophilic Addition of Nitrogen to Aryl Cations: Mimicking Titan Chemistry, 6Ith American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, Minneapolis Minnesota, USA. (June 9-13 2013).

40. **Jjunju P. M. Fred**, S. Maher, A. Li, H. C. Hsu, P. Wei, S. Taylor and R. G. Cooks, Ambient analysis of nitrogen compounds in petroleum oil using desorption atmospheric pressure chemical ionization, RSC Chemistry in the Oil Industry XIII Symposium, Manchester, UK (November 2013).

41. Li. Anyin, **Jjunju P. M. Fred**, S. Taylor and R. G. Cooks, In-situ analysis of oil matrices using paper spray ionization and portable mass spectrometer: toward chemical analysis in the oil field of corrosion inhibitors and so on, RSC Chemistry in the Oil Industry XIII Symposium, Manchester, UK (November 2013).

42. S. Maher, **Jjunju P. M. Fred**. M, S. U. Syed and S. Taylor, Performance of a quadrupole gas analyzer operating in stability zones 1 and 3, VS4: 4th Vacuum Symposium UK, Coventry UK (October 2013).

43. Anyin Li, **Jjunju P. M. Fred**, Eric Boone, Robert Shellie, Michael Wleklinski, Kerri A. Pratt, R. Graham Cooks, Paper Spray Ionization under Harsh Environment and Gas Phase Ion Molecule Reaction under Titan Simulate Environment, 9th HEMS Workshop 15–18, St. Pete Beach, Florida, USA (September 2013).

44. M. J. Antony Joseph, S. Maher, **Jjunju P. M. Fred**, S. U. Syed, I. S. Young, R. Heeren and S. Taylor, Ion transmission factors affecting sensitivity for a miniature QMS, The 34th BMSS Annual Meeting, Cheshire, UK (April 2014).

45. M. J. Antony Joseph, S. U. Syed, S. Maher, **Jjunju P. M. Fred**, R. Heeren and S. Taylor, Quadrupole mass filter design and performance for operation in stability zone 1, NVMS 50th Anniversary Congress in Rolduc, Netherlands (April 2014).

46. Simon Maher; Sarfaraz U. A. Syed; John R.Gibson, **Jjunju P. M. Fred**, Barry L. Smith; David Taylor; Iain S. Young; Ron M. A. Heeren; and Stephen Taylor; Dog, New Tricks: Enhanced Quadrupole Performance by Addition of a Magnetic Field, 63rd American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, America's Center, St. Louis, Missouri (May 2015).

47. Simon Maher, Barry L. Smith, Mariya A. Juno, **Jjunju P. M. Fred**, Behnam Bastani, Lei Su, Urszula Salaj-Kosla, Liam Lewis, Jean-Michel Mortz, Dag Hammer, Gyda Cristophersen, Pat O'Leary, Allan MacMaster, Stephen Taylor, Iain S. Young; Making Sense of

Water Quality: A Portable MS-UV Sensing Platform for Real-Time Monitoring in Aquaculture, 63rd American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, America's Center, St. Louis, Missouri (May 2015).

48. Mariya J. Antony Joseph; Simon Maher; **Jjunju P. M. Fred**, S. U. A. H. Syed; John R. Gibson; Iain S. Young; Ron M. A. Heeren; Stephen Taylor; Every Ion Counts: Optimization of the Quadrupole Mass Spectrometer for Improved Ion Transmission and Flat-Top Peaks", 63rd American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, America's Center, St. Louis, Missouri (May 2015).

49. S.U.A.H Syed; Gert B. Eijkel; Simon Maher; **Jjunju P. M. Fred**, Hans R. Poolman; Stephen Taylor; Ron M.A. Heeren; "There's Plenty of Room at the Bottom: a Micro-Pixelated Position Sensitive Detector for Performance Improvement of a QMS Instrument", 63rd American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, America's Center, St. Louis, Missouri (May 2015).

50. **Jjunju P. M. Fred**, S. Maher, A. Li, M. J. Lynch, B. Smith, S. U. Syed, R. M. A. Heeren, S. Taylor and R. Graham Cooks; "Handheld Portable DAPCI Ion Source for in-situ Analysis of Nitroaromatic Explosives" BMSS Annual Conference (14-17 September 2015) Birmingham UK.

51. **Jjunju P. M. Fred,** S. Maher, Stephen Taylor and R. G. Cooks; "Handheld and Portable DAPCI source for Point and Shoot Applications: Towards Onsite In-Situ Explosives Analysis" 64th American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, (June 5-9 2016) San Antonio, Texas, USA.

52. Simon Maher1; Simon Maskell; Sarfaraz Syed; **Jjunju P. M. Fred,** Stephen Taylor; "Finding the Peaks: Performance Enhancement of Portable MS using a Bayesian Approach" 64th American Society of Mass Spectrometry (ASMS) Conference on Mass Spectrometry and Applied Topics, (June 5-9 2016), San Antonio, Texas, USA.

53. **Jjunju P. M. Fred,** S. Giannoukos, D. T. McGuiness, A. Marshall, V. Selis, J. Smith, S. Maher, S. Taylor, "Scent Transmission over the Internet using Mass Spectrometry" 65th ASMS Conference (June 4-8, 2017) Indianapolis, Indiana, USA.

54. S. Giannoukos, D. T. McGuiness, **Jjunju P. M. Fred,** S. Giannoukos, D. T. McGuiness, A. Marshall, V. Selis; J. Smith, S. Maher, S. Taylor, "Investigating mass spectrometric communication approaches for odor transmission over data networks" 65th ASMS Conference (June 4-8, 2017) Indianapolis, Indiana, USA

55. **Fred P. M Jjunju,** Stamatios G. A. Marshall, "In-situ Analysis of Food Flavors using Portable Mass Spectrometry", 66th ASMS Conference on Mass Spectrometry and Allied Topics, June 3 - 7, 2018 San Diego, California, USA.

❖ **ICIT Skills, Knowledge and competency**

✓ Excellent at cloud and cross-platform application development and deployment; including the creation and consumption of a Web API. Data access techniques including data stored in files; on the hard disk, in XML format, and in databases.
✓ Proficient at using C# and the .NET Framework including Windows Communication Foundation (WCF) and Universal Windows Applications.
✓ Excellent Programming Skills: I am proficient in C/C++, Python, C# using the .NET Framework MATLAB and ARM assembly language.
✓ Ability to work with diverse populations and foster a co-operative work environment.
✓ Excellent IT Skills – High proficiency with engineering related IT skills (such as CAD, PSPICE, LTSPICE, MATLAB/SIMULINK, Microsoft Visual Studio, LabView etc.), SPSS, Minitab and all MS Office applications
✓ Game and VR/AR/MR development using Unity 3D development environment
✓ Skills to Implement and Manage Cloud Network architectures in Google, Microsoft Azure , and Amazon (AWS) Cloud Platforms
✓ Ability to design and implement a secure infrastructure on Google, Azure MS, Amazon Web Services Cloud Platform.
✓ Expert in the build and administration of Microsoft Windows Server and automation Tooling.
✓ Expert in the build and administration of Microsoft Internet Information Services.
✓ Expert in the build and administration of Microsoft SQL Server.
✓ Expert in the design and implementation of highly redundant, scalable and secure private cloud hosting platforms utilising the VMware products, vCenter Server, vSphere, NSX, vSAN, vRealize Suite
✓ Experience of automating infrastructure and solutions at scale using tools like Terraform, Ansible and Powershell for deployment and administration.

- ✓ Have a broad technical infrastructure architecture experience at scale covering compute, storage, and networking and security disciplines.
- ✓ Ability to troubleshoot complex problems to identify root cause.
- ✓ Experience of the build and administration of Microsoft Windows Server Stacks and automation tooling on public cloud such as Azure and AWS.
- ✓ Linux System Administration.
- ✓ SharePoint.

❖ **References**

1. **Prof. Stephen Taylor**
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