ITS International Students Alumni

PASSION COMPETITION

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Passion Competition 2021: Alumni Story Competition

Title: My Career Benefits from studying at ITS.

Essay:

It was not until I got selected as part of staff exchange with Industrial Engineering Department at Institut Teknologi Sepuluh Nopember due to my systems engineering passion that I ever dreamt of studying at the Institute or studying outside my birth country. It turned out to be a life time opportunity that shaped my career, future and opened many opportunity doors.

Firstly, being at Institut Teknologi Sepuluh Nopember gave me an opportunity to study courses that bolstered my systems engineering passion. During my undergraduate studies I had missed courses such as Discrete Event Simulation which is key in systems engineering but all that was rectified at ITS. I was even introduced to System Dynamics, a course that not even a single tertiary institute or university in my country was offering. I fell in love with the course and it has since become core of my research interest. These two modelling and simulation courses had made me focus more on Modelling and Simulation and I have gone further to add Agent Based Modelling. I can now do hybrid modelling using these simulation methodologies. Undertaking these courses had opened my eyes and made me see that in studying systems be it designing a new system, redesigning an already existing system or optimising a system for better performance, one has to understand the system behaviour first, a key aspect that was lacking in my knowledge.

Learning at ITS added a different dimension to my research interest through learning modelling and simulation tools that I am now applying to solve real life problems. I am now using these methodologies (DS, DES) in decision-making processes through development of decision-making tools for strategic/ policy/ decision making processes. This does not benefit just me, but the whole country through informed decision-making processes from developed models to aid in the avoidance of decisions/policies/strategies that may have unintended negative effects on systems in the long run. I have developed a cutting edge to my research because of these tools and I have since transferred that cutting edge to our Industrial and Manufacturing graduates through introduction of System Dynamics course into their curriculum.

An introduction to System Dynamics had linked me to System Dynamics Society where I am now a member and have benefited more from the Society through mentorship programs. I got scholarships to attend System Dynamics summer school and conferences in 2017 and 2019. During these summer schools and conference I got the opportunity to mix and mingle with System Dynamic gurus like Prof John Sterman. This

helped me to enrol for Ph.D. program where I am applying System Dynamics methodology and I have become part of the System Dynamics student chapter where I am getting help through the mentorship programs. It is through these mentorship and interactions that I got to know of Prof Todd BenDor, Prof Robinson and Dr Tako who are passionate about modelling and simulation. Meeting these professors and doctors helped me a lot in mapping the way forward of my current Ph.D. research and it enlightened me on how hybrid modelling is very important in achieving my research goals.

Recently a sister university had a masters student who wanted to apply System Dynamics in his research, I was asked to supervise the research and did it successfully to boost my curriculum vitae and profile through community service. Since graduating from ITS, I have introduced System Dynamics at my college in Operations Management course, and as of now more than five students have already applied System Dynamics in their research to solve real life problems. This has added a positive notch to my faculty profile through curriculum development. I have formed a systems engineering club in my department, all credit goes to ITS where I borrowed the ideas. Lastly but not least, I have successfully reviewed a System Dynamics journal paper waiting publication in Zimbabwe Journal of Science and Technology, All this was possible because of Institut Teknologi Sepuluh Nopember where I got introduced to System Dynamics modelling and simulation.

I have become a better researcher especially on the issue of citing and referencing. At ITS, I was taught the importance of citing and referencing, and before carrying out any research project one has to do thorough journal review to find the gap. They encouraged us to attend conference and it was where I first attended a conference presenting a research paper and ended up publishing the resultant research dissertation done during my studies. The journal review process was an eye opener and up to now I am using the gained experience to my advantage. Even in teaching research process to our students, the honours lays with me always to deliver on referencing and citing. In addition, ITS has put me on map through posting of my abstract on the university's online repository and of that I have received numerous offers to publish in different journals.

In conclusion, my career was propped by ITS through giving me tools that gave me a competitive advantage in my area of expertise. I now do not just decide subjectively, I make informed decisions through application of modelling and simulation processes. Furthermore, since I joined System Dynamics Society I have had different mentors from different cultures and backgrounds that has helped me a lot to develop better and understandable models, even my mentorship qualities have drastically improved because I do weigh things before acting. I have not only developed academically, I also gained socially, how to fit into a different cultures, societies and interacting with different people of different levels and learning the art of teaching and research.

Bibliography:

Portia Mupfumira is a lecturer, mentor, researcher and patron to systems engineering club at Harare Institute of Technology in the department of Industrial and Manufacturing Engineering and a part time Ph.D. research scholar in Engineering at the Namibia University of Science and Technology. A member of the Zimbabwe Institute of Engineers (ZIE), Women in Engineering (WIE ZIE) and System Dynamics Society (SDS). Portia attained a National Certificate in Machineshop Engineering in 2002 at the Harare Institute of Technology. She received her B.Tech Honours degree in Industrial and Manufacturing Engineering at the same college in 2009. She was accorded an opportunity to study Masters in Industrial Systems Optimisation under Beasiswa Unggulan Scholarship at Institut Teknologi Sepuluh Nopember in Indonesia in 2012, a fit she attained within the stipulated time period regardless of language barrier.

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