

A Day in the Life of a TIN Intern: Akhil Ahmed

Hello! My name is Akhil Ahmed, and I recently completed a successful **six-month internship** with the Applied Intelligence Team at **Accenture** and the Algorithm Underwriting team at Ki Insurance, as part of the Alan Turing Institute internship programme, Turing Internship Network. It's been an amazing experience, filled with opportunities for learning, commercial software development, and academic research.



About me

A little about myself - I am a PhD student at The Sargent Centre for Process Systems Engineering at Imperial College London, working in the Autonomous Industrial Systems Lab and the Optimisation and Machine Learning for Process Systems Engineering group. My research focuses on using machine learning methods for adaptive modelling, control and optimisation of large-scale process systems.

Why I applied to the Turing Internship Network (TIN)

When I learned about the opportunity offered by TIN to develop a model of the specialty insurance market, I was immediately sold. It aligned with the general scope of my PhD research, but also pushed me **out of my comfort zone** by applying my skills to financial markets and agent-based models (ABMs), which were new to me. Moreover, the internship provided a unique chance to work on a commercially relevant project in collaboration with Ki Insurance, a client company of Accenture, with the goal of developing a codebase for their use. This appealed to me as it allowed me to further develop my software development skills and gain hands-on experience in writing code for **commercial applications**, not just research.

How did the internship benefit me?

Looking back, I can confidently say that my internship was a resounding success. I thoroughly enjoyed the opportunity to **learn across different disciplines**, including insurance and financial market fundamentals, software design patterns, agile development methodologies and automated testing techniques. Working with agent-based models was a unique and enriching experience, and I also learned how to communicate my research findings to different audiences. In addition to achieving the objective of producing a commercially useful codebase for Ki Insurance, we also used the model to extract novel insights into various market phenomena, making our work academically relevant. Based on this, we submitted a paper entitled "*Exploring the Dynamics of the Specialty Insurance Market Using a Novel Discrete Event Simulation Framework: a Lloyd's of London Case Study*" for publication, highlighting our findings and contributions to the field.

What did my internship look like?

My day-to-day work during the internship was **diverse and dynamic**, evolving through different stages of the project over the 6-month period. In the first 1-2 months, we focused on defining the project scope and reviewing the relevant literature. This was followed by 2-3 months of development and experimentation, where we iterated on different designs and models of the market and conducted experiments to uncover emergent phenomena. The final month or two were dedicated to finalising our design, refining the codebase and documentation, and preparing for handover to Ki Insurance, while also writing our research paper.

On a **typical day**, I would allocate time in the morning and at the end of the day to improve my software development skills, going through classic computer science texts such as *Structure and Interpretation of Computer Programs*, *Computer Systems: A Programmer's Perspective*, *The Algorithm Design Manual* and *Designing Data-Intensive Applications* while also honing my coding abilities. I would spend around 4-5 hours on coding different model components and reviewing the literature, with the split depending on the project stage. For instance, during the early stages, I focused on reviewing papers and formulating ideas, while towards the end, coding took more prominence. The rest of the day was filled with various tasks, such as liaising and presenting our findings to stakeholders, and collaborating with the core development team through discussions and brainstorming sessions. No two days were the same, which made the experience exciting and enjoyable.

Did my TIN internship advance my career?

Overall, my TIN internship with Accenture and Ki Insurance was a tremendous success. I gained valuable skills, contributed to a commercially relevant project, and produced academically relevant research findings. It was a unique learning experience that will undoubtedly impact my PhD research and future employability, whether in academia, industry or the world of start-ups.