

# PhD Candidacy: A Tutorial on Overcoming Challenges and Achieving Success

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**Abstract.** Undertaking a PhD is a demanding yet rewarding experience. PhD candidates develop a deep understanding of their research topic and acquire a wide range of skills, including *(i)* formulating research questions; *(ii)* conducting research ethically and rigorously; *(iii)* communicating research findings effectively to both academic and non-academic audiences alike; *(iv)* forging a profile as an independent researcher; and *(v)* developing a teaching portfolio. PhD candidates inevitably experience challenges during their candidature. These challenges can be overcome by applying various techniques to adapt and learn from these experiences. This tutorial introduces strategies to help them advance in the PhD process. It is presented by two early career researchers in information retrieval, who have the unique perspective of being close enough to their time as PhD candidates to remember the highs and lows of PhD life yet far enough removed from the process to reflect on their experiences and provide insights. The tutorial will empower attendees to share, review, and refine productivity methods for their PhD journey. It provides a non-judgemental platform for open discussions led by the presenters.

**Keywords:** PhD research · Productivity · Success · Experiences.

## 1 Introduction and Motivation

Earning a PhD is an achievement. The privilege of appending the letters *PhD* to one's name symbolises expertise in a specific field and acts as a testament to their determination and resilience. PhD candidates embark on a journey, aspiring to join the select few with a doctoral degree. In 2018, just 1.1% of people within the 25–64 age group were reported to possess a doctoral degree across all *OECD* nations [8, Figure B7.1]. This fraction of the population gains the opportunity to refine their skills within the structured confines of a university, benefiting from invaluable support and mentorship from their supervisor(s) [9, 2].

Doctoral candidates are provided with valuable support for acquiring new skills, building meaningful connections, and honing their analytical thinking abilities, all within a relatively condensed time frame [4]. To realise these objectives, substantial financial, intellectual, and interpersonal resources are channelled into nurturing the candidate's growth. These resources must be maximised, ensuring

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the highest likelihood of the candidate’s success. This investment is pivotal for the individual and represents a vital component of the broader ecosystem of “*giving back to society*” by cultivating efficient researchers.

This tutorial is designed as a platform to explore PhD candidates’ diverse and unique journeys, highlighting the presenters’ transitions across academic institutions and between academia and industry. Targeting current and aspiring PhD students, we aim to foster a dynamic peer-to-peer dialogue, drawing insights from academics and industry professionals. Instead of replacing formal university guidance, our goal is to *supplement it* by facilitating discussions on varied success strategies in academia. A pivotal aspect of our tutorial will be examining the impact of *Large Language Models (LLMs)* on PhD research, particularly addressing worries regarding the possible devaluation of one’s work and suggesting adaptive, resilient approaches. In doing so, we strive to create a collaborative environment for openly addressing contemporary challenges and seizing opportunities in PhD trajectories.

The tutorial’s goal is to catalyse current and future PhD candidates, empowering them to establish connections with their peers, fostering engagement with senior researchers, celebrating accomplishments, handling setbacks with resilience, and encouraging active involvement within the academic community. While this tutorial may not encompass all aspects of the PhD experience, it is designed to be a foundational resource for building a well-connected and strengthened ECIR community, particularly among junior scholars.

## 2 Syllabus

### 2.1 Key Presenter Themes

**Everyday Practical Tips (90 minutes).** This first theme introduces and discusses practical tips; we begin with time management and writing tools — including good working practices. We introduce how to plan, keep track, and optimise available time. We share resources, including tips and tricks on writing or editing research papers and theses [3]. We also encourage attendees to take ownership of their projects, including steering and framing their work. Afterwards, we draw attention to mental health, sharing several techniques useful to develop our relationship with stress or dealing with negative emotions.<sup>3</sup>

An ECIR PhD can present unique research issues that candidates must understand. While such assistance is already available (e.g., work by Kelly [5]), we highlight some lessons we learned during our respective PhDs, including insights into managing student/supervisor relationships.

**Presenting and Communicating Your Research (90 minutes).** Research communication is the process of interpreting and presenting research findings to a broader audience and is a crucial aspect of being a scientist. In this theme, we provide tips on explaining research and how to present research in presentations. We provide frameworks to summarise and story-tell research findings and examples of noteworthy presentations.

<sup>3</sup> This is *not* a replacement for professional help.

For this theme, we draw on previous materials [7] as a case study to discuss lessons learned for presenting and communicating research. We provide tools, tips and resources to improve and increase a PhD student’s sense of capability to finish their thesis. Furthermore, we share experiences of the transition from being a PhD student to a post-PhD.

## 2.2 Panel

As part of our tutorial, we host a panel discussion featuring senior researchers from the ECIR community. This session allows attendees to gain insights from seasoned experts in information retrieval, offering valuable perspectives on research, academia, and career development. The panel discussion promises to empower attendees with actionable advice and strategic guidance, equipping them to confidently navigate the intricacies of an information retrieval PhD and academia. The tutorial presenters will lead this panel and will start with a round of questions before a Q&A with the audience.

## 2.3 Breakout Groups, ‘Speed-Dating’, and Other Researchers

In the breakout groups, our primary aim is to foster meaningful discussions and collaboration among participants. We intend to encourage attendees to explore topics relevant to their work and research interests tied to the conference themes.

## 2.4 Learning Outcomes

This tutorial is designed to enhance a PhD candidate’s sense of purpose, capability, community engagement, and resourcefulness, contributing to developing a vibrant academic culture [6]. Furthermore, it underscores that the PhD journey is not a solitary pursuit of research and personal growth but rather a *shared endeavour*. Students will receive encouragement in their research pursuits, with a focus on highlighting available support systems. By participating in this tutorial, attendees will gain knowledge, establish a peer support network, and acquire essential skills and competencies in time management, strategies to address challenges, and communication skills.

## 3 Presenters

**Johanne Trippas**<sup>4</sup> is a Vice-Chancellor’s Research Fellow at RMIT University, specialising in intelligent systems, focusing on digital assistants and conversational information seeking. Her research aims to enhance information accessibility through conversational systems, interactive information retrieval, and human-computer interaction. Additionally, Johanne is currently part of the NIST TREC program committee and is an ACM CHIIR steering committee member. She serves as vice-chair of the SIGIR Artifact Evaluation Committee, tutorial

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chair for ECIR'24, general chair of the ACM CUI'24, and ACM SIGIR-AP'23 proceedings chair. She has organised workshops (CHIIR'20–22, ECIR'24) [1, 10], a TREC Track (CAsT'22), and tutorials (CHIIR'21, SIGIR'22, and Web-Conf'23) [11].

**David Maxwell** David is currently a Data Scientist at *Booking.com*, based in Amsterdam, The Netherlands, where he tackles a range of data science challenges. Despite his move from academia, he remains in touch with the Information Retrieval community. Prior to this, he was a postdoctoral researcher at *Delft University of Technology (TU Delft)* in the Netherlands, collaborating with Dr Claudia Hauff. He earned his PhD in *Interactive Information Retrieval* from the *University of Glasgow*, Scotland, in June 2019, affiliated with the School of Computing Science. His research interests include understanding user behaviours when undertaking complex search tasks, and modelling such behaviours. Over the years, David has delivered well-received talks on his experiences as a PhD student—from discussing his research, to sharing the positive and negative experiences he faced. He has released an online guide<sup>5</sup> highlighting the challenges (and potential solutions) that students may face when writing up [7].

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<sup>5</sup> <https://www.dmax.scot/things/phd/writing-up/>