

Dear Members of the Selection Committee,

I am writing to express my interest in the Scientific Staff position developing digital learning paths in Dodona for criminology students at Ghent University. This role aligns perfectly with my expertise in **quantitative criminology**, experience in **teaching**, and commitment to technology-enhanced learning.

As a PhD holder in Criminology and current postdoctoral researcher at our faculty, my research has led to publications in journals such as *Quantitative Journal of Criminology*, focusing on **crime location choice** and **spatial analysis**. Teaching undergraduate students in India and master's students at UGent has provided me with valuable insight into how students engage with statistical material and which pedagogical approaches best support their learning.

From my experience, criminology students often come from social science backgrounds with limited quantitative training and may experience **statistical anxiety**. Instruction becomes more effective when statistical concepts are presented through **criminologically relevant examples** rather than abstract contexts. This approach improves conceptual clarity and promotes learning by anchoring statistical methods in real-world applications.

My **technical skills** directly support this role's requirements. I regularly use **R for data analysis and visualization**. I have practical experience with **and interactive material development**, **GitHub** and am familiar with **HTML and JavaScript** for enhancing interactivity - essential skills for creating structured, responsive Dodona exercises.

To demonstrate my approach, I have developed [15 multiple-choice Dodona exercises](#) that integrate statistical principles with criminologically relevant scenarios. The exercises include questions on **burglary rates, correlations between unemployment and crime, and interpreting official crime statistics**. In each exercise, contextual reminders are provided (e.g., "Een correlatie van 0,7 tussen werkloosheid en misdaad betekent een sterk verband, maar nog geen causaal verband"), and carefully constructed answer options reflect and address typical student errors. This approach improves student engagement, supports knowledge transfer, and reduces cognitive load by situating abstract concepts in meaningful examples. All files used to create the exercise are available in my [GitHub repository](#).

To elaborate on my pedagogical methods, I have included a supporting document titled **Dodona Learning Path: Pedagogical & Technical Overview**, detailing my use of **scaffolding techniques, Bloom's Taxonomy, and student-centred design principles**. This document illustrates how I have structured the learning path through the 15 exercises to ensure progression in both cognitive complexity and statistical reasoning.

My contribution is distinguished by integrating **technical functionality with sound pedagogical design**. The exercises are crafted to address common misconceptions in statistics through targeted feedback and practical tips. For example, exercises on correlation clarify that a statistically significant relationship between neighbourhood disorder and crime does not imply causation. Hints in each exercise provide contextual reminders, and carefully constructed answer options reflect and address typical student errors.

The intersection of my criminological expertise, teaching experience, and programming proficiency enables me to create learning materials that are not only technically correct but also educationally meaningful and aligned with criminology students' needs.

This position also matters to me personally. I am currently **broadening my career focus from academic research into data analysis and applied data science**. The role offers a unique opportunity to strengthen my skills in **educational design and technical implementation**, while also expanding into other programming languages and platforms beyond R—such as **Python, HTML, and Java** – that are required for developing Dodona exercises and needed for pedagogical or project-based integration.

Alongside the Praktijkassistent position (ref. 202506/RE23/PA/003), which I have also applied for, these roles together would provide a strong bridge from my criminology background into a future role in data science, combining **technical content creation with hands-on teaching and assessment**. This path reflects my long-term goal of working at the **intersection of education, applied analytics, and criminology**.

In addition, I am familiar with using **high-performance computing (HPC)** for large-scale data processing and simulations. If required, I am available to support team's projects involving **spatial analysis or data-driven policy evaluation**. My experience with **geospatial data, and network analysis** allows me to contribute flexibly to research or educational initiatives.

Beyond content development, I have firsthand experience with the Dodona platform, having built and refined criminology-specific exercises with interactive media and auto-graded feedback. My understanding of departmental workflows – from three years of supporting lectures, supervising theses and internships, and coordinating assignments – has allowed me to develop strong working relationships with colleagues on the team. This experience positions me to collaborate efficiently with course coordinators.

With **Dutch NT2 A2 certification** and current enrolment in **A3-level courses**, I am committed to producing accessible learning materials and improving my instructional communication in Dutch.

Thank you for considering my application. I look forward to the opportunity.

Sincerely,
Dr. Kuralarasan Kumar