

# Preface

This book was conceived near the end of the Fish4Knowledge project as a way of communicating the achievements of the project to the scientific community. Many scientific projects are very successful with journal and conference publications, but it is rare to find an extended document that gives a full overview of a project, describing not only the original contributions but also the necessary infrastructure aspects. This book belongs to the latter category—it gives a brief introduction to almost all aspects of the project in a series of 18 short chapters. This exposes a range of topics, and also a view of how all of the topics fit together into the full project. It is not a “popular science” account of the project, i.e., it does not go into the personalities, motivations, and challenges behind the project. Instead, it is a technical book describing the scientific and engineering of the project. But by keeping the chapters short, we have tried to make the content accessible to the broader scientific public, particularly for the biological and computer science communities. Each chapter cites more extensive descriptions of the content from the more than 50 technical publications arising from the project.

The idea for the Fish4Knowledge project started to germinate from discussions and visits between the Edinburgh and Taiwan partners, originally as an ecological monitoring project based on video data captured off the coast of Taiwan. Later, we saw the European Union Framework Seventh Programme call for proposals on the topic of Digital Libraries and Content. This call came at the start of the scientific community’s widespread interest in “big data.” As a consequence of this convergence, we conceived of a project that would combine computer vision, large datasets and databases, supercomputer processing, and intelligent information presentation methods. Clearly, the proposal was successful and the resulting project ran from October 1, 2010 through September 30, 2013. In the end, we recorded and analyzed about 90,000 hours (90 TB) of video from nine cameras off the coast of Taiwan, detecting and tracking over 1 billion fish, and recording their details in an SQL database approaching 500 GB in size. The results are analyzable and viewable by marine ecologists using the facet-based user interface that the project developed.

You might wonder if the authors are going to get rich from the royalties arising from this book? With more than ten authors to share the royalties, we thought that each author's share would hardly be more than enough to take their patient friends and family out for a nice dinner to celebrate the book. So, instead, we decided that the royalties should be donated to the FishBase project ([FishBase.org](http://FishBase.org)) that provided us with much useful, and free, background knowledge about the species. We greatly appreciate this excellent and free resource.

I (Bob) would like to make a final, personal comment—although I was the coordinator of the Fish4Knowledge project, it was more a first amongst equals situation. There was a great deal of enthusiasm by all project members, both senior and early career researchers, and great cooperation and collaboration by all. It made it easy to coordinate the project (and this book). It was also a fun project, where the consortium meetings rotated around the different partners' locations. This included two meetings in Taiwan—great food, a bouncy boat trip to LanYu Island (one of the recording sites) and a bit of team snorkeling around the fish that we had seen so much of in the videos. It was a real pleasure working with everyone on this fun and scientifically interesting project!

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Reef Fish Video Data

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