



# Contents

Welcome to the PASCAL brochure. In the following pages we describe the PASCAL Network of Excellence, and provide personal perspectives of the network from some of our members. We then present five articles that showcase the exciting theoretical foundations and the diverse range of potential applications of PASCAL technologies. The unique ways in which PASCAL supports scientists are described in the Pump-Prime and Challenges sections. Finally we go behind the scenes and see how PASCAL was coordinated.

## What is PASCAL?

PASCAL is a Network of Excellence funded by the European Union. It has established a distributed institute that brings together researchers and students across Europe, and is now reaching out to new countries all over the world.

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## Personal Perspectives of PASCAL

PASCAL is a distributed institute – an institute without walls that spans many countries. In this section, we hear the personal perspectives of some of the members of PASCAL, in their own words.

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## Opening Windows on Science

If only we could have peer-reviewed science described in a fun and interesting style, by experts who were self-motivated to communicate in the very best ways they can. Perhaps we could also have all the talks from the best conferences available to everyone, at any time. Wouldn't it be great if academia worked like this?

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## The Desktop Doctor

Hundreds of years of medical experience. Its role is to brainstorm with human doctors and help them look at all possibilities when diagnosing illnesses. It is Promedas, the desktop doctor.

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## What Are You Looking At?

You're waiting at the station for your train and you glance at the electronic poster next to you. It notices that you're looking at it, and from your gaze it works out what you would most like to see. It's as though it's reading your mind – but really it's reading your eyes.

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## The Mind Reading Wizards

Telepathy was once nothing more than a parlour trick played by illusionists to entertain us. Now something resembling telepathy is becoming a reliable reality. Even if you control every movement of your muscles or flicker of your eyes, you will never hide your brain activity. The magic word is not abracadabra, but Hex-o-Spell!

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## Letting Stones Go Unturned

Wéiqí, Baduk or simply, Go. Over two thousand years old, this challenging game of strategy and tactics has taught warriors, monks and intellectuals to focus, concentrate and plan. But a program is beginning to change our views of what is possible. In computer competitions this multi-armed bandit has stolen first prize more often than any other. It's MoGo, or Monte Carlo Go.

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## PASCAL Pump Prime

PASCAL takes its role as a Virtual Institute seriously. One pioneering approach that showed enormous success was the Pump Priming Programme.

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## PASCAL Challenges

To exploit the competitive nature of many researchers and drive progress forwards at a faster pace, PASCAL encouraged its members to create a series of challenges. An amazing total of 26 challenges were created during the lifetime of PASCAL.

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## Behind the Scenes

The Networks of Excellence funded in the European Union's Framework Six research programme were expected to be significantly larger than ever before. Different networks have handled the challenge of size and diversity in different ways. Here we go "behind the scenes" of the PASCAL Network of Excellence and describe how the difficult challenges of management and decision-making were handled.

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LANGUAGE