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### User Transparent Parallel Image Processing

Seinstra, F.J.

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# User Transparent Parallel Image Processing

Frank J. Seinstra

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The graphic on the cover symbolically represents many of the aspects of the software architecture for user transparent parallel image processing described in this thesis. The image of the roundel, with its blue bar against a bright red circle, hints at the tube station signs used at London Underground. Just as metro trains are speeding throughout an underground network of tunnels, hidden from anyone directly above it, in our software architecture all intricacies of high speed processing are shielded from the user completely. Also, the tube station sign is affected somewhat by motion blur, to indicate the speed obtained with our architecture. The partitioning of the image hints at the strictly data parallel approach followed in all implementations. Finally, the characters in the blue bar spell out: "Mind the gap". First, this refers to the research issue of Chapter 5, which stresses the importance of incorporating memory layout in the modeling of message passing programs. More importantly, this relates to the observed gap between the highly specialized expertise of the image processing community, and the additional expertise required for efficient employment of high performance computer architectures. Only recognition of this particular gap can bring about an acceptable long-term solution for the image processing community at large.

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# User Transparent Parallel Image Processing

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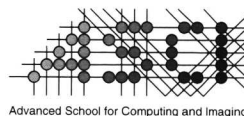
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Faculteit: Faculteit der Natuurwetenschappen, Wiskunde & Informatica  
Kruislaan 403  
1098 SJ Amsterdam  
Nederland

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**Intelligent Sensory Information Systems**  
*University of Amsterdam*  
*The Netherlands*

