

Tools for a Robust, Sustainable Agent Community

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Abstract. We believe that intelligent information agents will represent their users interest in electronic marketplaces and other forums to trade, exchange, share, identify, and locate goods and services. Such information worlds will present unforeseen opportunities as well as challenges that can be best addressed by robust, self-sustaining agent communities. An agent community is a stable, adaptive group of self-interested agents that share common resources and must coordinate their efforts to effectively develop, utilize and nurture group resources and organization. More specifically, agents will need mechanisms to benefit from complementary expertise in the group, pool together resources to meet new demands and exploit transient opportunities, negotiate fair settlements, develop norms to facilitate coordination, exchange help and transfer knowledge between peers, secure the community against intruders, and learn to collaborate effectively. In this talk, I will summarize some of our research results on trust-based computing, negotiation, and learning that will enable intelligent agents to develop and sustain robust, adaptive, and successful agent communities.