Human Life in the Environment of Ambient Intelligence

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Abstract: Human life is now going in such a environment where technologies became closer friends and family members. We prefer our cell phones to utilize our times rather than doing gossips with family members. Even we do interaction more with machines in comparison to humans. Ambient Intelligence **(AmI)** refers to a digital environment that proactively, but sensibly, supports people in their everyday lives. It will make the feeling that the people live with technology. It is aligned with the concept of 'disappearing computer', since the AmI environment make the technology invisible. As the devices grow smaller, more connected and more integrated into our environment, the technology disappears into our surroundings. The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it. The basic idea behind AmI is that by enriching an environment with technology (mainly sensors and devices interconnected through a network), a system can be built to take decisions to benefit the users of that environment based on real-time information gathered and historical data accumulated.

Keywords: Ambient Intelligence, Ubiquitous Communication, User Interface.

I. INTRODUCTION

We have heard a lot about Artificial Intelligence, Now the new term is Ambient Intelligence (AmI) and this is the next generation of Artificial Intelligence (AI), we can now imagine the life beyond Robotics. Ambient Intelligence (AmI) is a new paradigm in Information Technology that has potential for great impact in the future. The vision of AmI is that the people will be surrounded by intelligent objects that can sense the context and respond according to the desire of the people. AmI is a multidisciplinary topic, since it combines the features of many of the areas in Computer Science. In the last five years, we have seen significant advances in three promising technology areas: virtual environments, in which 3D displays and interaction devices immerse the user in a synthesized world, mobile communication and sensors, in which increasingly small and inexpensive terminals and wireless networking users to roam the real world without being limited to stationary machines. The merging of these areas allows the emergence of a new vision: the **Ambient Intelligence** (AmI).

II. IMPORTANCE OF AMI IN HUMAN LIFE

Ambient intelligence (AmI) deals with a new world of ubiquitous computing devices, where physical environments interact intelligently and unobtrusively with people. These environments should be aware of people's needs, customizing requirements and forecasting behaviors. AmI environments can be diverse, such as homes, offices, meeting rooms, schools, hospitals, control centers, vehicles, tourist attractions, stores, sports facilities, and music devices. Artificial intelligence research aims to include more intelligence in AmI environments, allowing better support for humans and access to the essential knowledge for making better decisions when interacting with these environments. This paper, which introduces a special issue on AmI, views the area from an artificial intelligence perspective. In AmI, technologies are deployed to make computers disappear in the background,

while the human user moves into the foreground in complete control of the augmented environment. AmI is a user-centric paradigm, it supports a variety of artificial intelligence methods and works pervasively, nonintrusive, and transparently to aid the user. AmI supports and promotes interdisciplinary research encompassing the technological, scientific and artistic fields creating a virtual support for embedded and distributed intelligence.

The areas of Ambient Intelligence and Smart Environments are being defined naturally as work in the area progresses and on demand by everyday life problems and real applications. Although Ambient Intelligence And Smart Environments are strongly related, we can distinguish them by going back to the old "mind/brain" metaphor used in AI. The first one is more concerned with the specific techniques to make an environment behave intelligently whilst the second one is more related with the intelligent interconnection of resources and their collective behavior. Both overlap hugely and share many common objectives and it is difficult to tell apart one from the other. These areas gradually evolved in the last decades, motivated by seminal work conducted at Xerox Labs under the paradigm of the disappearing computer

III. THE SCOPE FOR AMBIENT INTELLIGENT SERVICES

The scope for ambient intelligent services is much larger than the personal level. Anticipatory mobile computing has the potential to reach millions of users via services such as commercial, public safety, planning, forecasting and research, and health monitoring. There are several business opportunities to be explored, and AI guru Lars Hard, CTO and founder of Expert maker, who expects more creativity in this space, starting with the enterprise. A huge competitive edge is the quality on how you bring products to customer. By allowing AI to help create models and new user experience, you help with discovery and exploration. It's enormously beneficial for everyone. The opportunities are immense and future apps will have increased precision and relevance, become more personal, and enable the use of many more information sources and to link to other devices or apps, and allow more adaptive user experience. All of these more complicated features require the use of one or many AI technologies.

Ambient Intelligence appears poised to cause remarkable changes in the way people live. With digital information, the ease of interaction between humans and computers can be greatly increased by broadening the interface media available and allowing for mobile and portable communication free of inhibiting wires and stationary units. Additionally, some forms of ambient intelligence allow computers to adapt to their user's preferences. The result of Ambient Intelligence is ultimately a more empowered computer with the benefits of added convenience, time and cost savings, and possibilities for increased safety, security, and entertainment. This technology has the potential to significantly impact business and government processes, as well as private life.. The authors believe that the introduction of this digital information technology will have wide-ranging implications, which will for the most part be beneficial and valuable.

IV. KEY TECHNOLOGY OF AMI

AmI is comprised of three main components

1. Ubiquitous Computing
2. Ubiquitous Communication
3. User Adaptive Interfaces

Ubiquitous Computing means that we have access to computing devices anywhere in an integrated and coherent way. Ubiquitous Computing was mainly driven by Communications and Computing devices scientific communities but now is involving other research areas. Ubiquitous Computing means any computing device, while moving with you, can build incrementally dynamic models of its various environments and configure its services accordingly. Ubiquitous Computing is a

post-desktop model of human-computer interaction in which information processing has been thoroughly integrated into everyday objects and activities.

Ubiquitous Communication can be broadly defined, but not restricted to, the process by which communications between multiple agents can happen simultaneously and without the restrictions of time. For example, a face to face conversation can only happen once, at one time. Posting a status update on Face book, allows the communication to pass from the person who posted the status to anyone else within his or her network. The status becomes Ubiquitous, as it does not rely on the person receiving the Status to access it at a particular time, or location.

User Adaptive Interfaces the third integral part of AmI, are also referred to as "Intelligent social user interface (ISUI). These interfaces go beyond the traditional keyboard and mouse to improve human interaction with technology by making it more intuitive, efficient, and secure. They allow the computer to know and sense far more about a person, the situation the person is in, the environment, and related objects than traditional interfaces can. ISUIs encompass interfaces that create a perceptive computer environment rather than one that relies solely on active and comprehensive user input. ISUIs can be grouped into five categories:

- Visual recognition (e.g. face, 3D gesture, and location) and output
- Sound recognition (e.g. speech, melody) and output
- Scent recognition and output
- Tactile recognition and outputs
- Other sensor technologies

V. CONCLUSION

Ambient Intelligence has been defined as the field to study and create embodiments for smart environments that not only react to human events through sensing, interpretation and service provision, but also learn and adapt their operation and services to the users over time. These embodiments employ contextual information when available, and offer unobtrusive and intuitive interfaces to their users. Through a user-oriented employment of communication links, these systems can also offer ambient communication and media delivery options between users allowing for seamless multi-party interactions and novel social networking applications.

Ambient Intelligence deals with a futuristic notion for our lives. Most of the practical experiences concerning Ambient Intelligence are still in a very incipient phase, due to the recent existence of this concept. Today, it is not clear the separation between the computer and the environments. However, for new generations things will be more transparent, and environments with Ambient Intelligence will be more widely accepted.

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