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2059: 75 Short Years Past 1984

On a bright spring morning in 2059, a groggy MIT undergraduate is awoken by the sound of soft music. As the window shades are automatically drawn through an integrated living environment-control system in his dormitory room, he reluctantly lifts himself out of bed and into a shower which was instantly adjusted to his heat preferences the moment he stepped in. As he runs shampoo through his hair, the student thinks about the long day of work ahead, but has little time to linger, for he has exactly seven minutes before the shower is shut off to conserve water. In lieu of hastily stuffing a backpack full of books and notebooks like his 20th century counterpart did, he picks up a slender cylindrical object containing all his coursework, notes, and readings and hurriedly straps another device – his digital content manager – to his wrist.

“Late for class as usual,” he mumbles under his breath as he rushes from Far West Campus (FWC), MIT’s newest residential life complex, to the main academic buildings. FWC, built on the land once occupied by the Hyatt Regency and the old West Campus athletic fields, was completed in 2050 as a response to MIT’s decision to greatly increase the size of its student body. Centered on a vast underground complex that connects back to West Campus, FWC provides housing for nearly a thousand students, entertainment, recreational, and dining facilities, and remote learning centers for students to interact with their peers from around the world. Much of FWC’s architecture is characterized by nontraditional and thought-provoking structures such as the color-changing polymer-based Digital Library, a building which digitally houses all of the information formerly contained in the Institute’s library system. The majority of the original library collections were

auctioned off to collectors as additional revenue for the Institute a few decades earlier, and the old library space was reclaimed for use as offices and classrooms.

Among the more subtle changes to the campus infrastructure are the ubiquitous energy harvesting complexes that dot the grounds. Despite Cambridge's lack of warm, sunny days, exceptionally efficient and low-cost photovoltaic cells blanket the roofs and sides of most buildings, many of which are designed specifically with maximizing surface area in mind. Every stray photon is captured through sophisticated semiconductor-based diodes and converted into electrical voltage signals which are then transmitted to the building's power system. Each building or small group of buildings is responsible for its own energy production, and if a building consumes more than it produces, its residents or occupants must purchase expensive supplementary power from the campus energy reserve system.

But not all of the Institute's energy is generated in such an unobtrusive manner. Along Memorial Drive, monolithic white windmills turn slowly in the gentle April breeze lifting off the cool, shallow waters of the Charles River. Since most of the original dormitories remained largely unaltered since the turn of the century, even the new photovoltaic panels were not enough to meet each building's consumption needs so the windmills were installed to prevent the frequent and costly electricity overruns. Though the students of many West Campus dormitories had fervently protested the idea of their river views being ruined by the installation of the Institute's Wind Energy Harvesting Complex, the administration and Cambridge city leaders had long since realized that the university consumed far too much power to rely solely on limited natural resources. Besides, with the addition of hundreds of digital advertisements displayed on paper-thin high-resolution screens lining the banks of the Charles, the days when anyone had much of a view were long gone. Intrepid companies had even begun projecting advertisements onto the surface of the water itself. The

incredible density of built-form in the new complex and MIT's campus as a whole is the unfortunate but necessary result of escalating urban land prices and increasing migration by former suburban residents to the metropolitan center.

As the student strides down MIT's nearly 150-year old Infinite Corridor, music playing from a tiny audio player that is embedded in his ear, it is clear that this fabled hallway has changed drastically since its construction in 1916. Rather than the once ubiquitous bulletin boards and paper fliers of the 20th century, the corridor is fully lined with digital panels driven by low-power organic LEDs that are constantly being dynamically updated with the latest information; news, weather, information about student events and activities, and even public art is on constant display through this powerful and pervasive digital media system. While the abundance of information can be overwhelming to the first time visitor, the student knows that he only needs to tap a button on his trendy wrist-mounted device and the information from the panel nearest to him will be instantly transmitted to his digital content manager for later review.

Finally arriving in 10-250 for his first class, the undergraduate slumps into a chair in MIT's flagship technology-enabled lecture hall, ten minutes past the hour. Despite the fact that the lecture is broadcasted live and archived permanently for later access in MIT's digital archives, he knows from past experience that he will never get around to watching the recording later, so he tries to attend as many of his lectures in person as possible. On some days when he is running especially late, he enables the live hologram function on his wrist-mounted digital content manager and can watch a miniature holographic image of the lecturer appear in front of him as he walks to class. While the learning environment is in many ways quite similar to that of the early years of the 21st century, the profusion of digital content has greatly expanded access to academic and professional resources. Expert professors and researchers from other institutions all over the world are brought

live to classrooms and lecture halls via sophisticated holography, so students can interact freely with them as if they were actually in the room. The student does not bother to take down notes, since all the content (including voice, video, and images) is digitally archived so he can jump immediately to relevant information through interpretive intelligence algorithms that allow everything from written works to voice recordings to be indexed and searched instantly. And fortunately, the educational system has adapted somewhat to the increasingly interdisciplinary nature of the professional world so many students no longer concentrate on a single specialization or major. Rather they select courses from within overarching themes such as Water Systems, Energy & the Environment, Information Technology, Manufacturing, and many more.

As the student finishes his second class of the day, he receives a page from a friend on his digital content manager inviting him for lunch at a local Cambridge eatery. A few minutes later, he strolls up Massachusetts Avenue towards Central Square, perusing the restaurant's menu on his wrist; he decides on a tomato, basil, and mozzarella panini made from locally grown and vitamin-enriched ingredients and his order is sent directly to the restaurant kitchen while the cost is deducted automatically from a designated "food expenses" portion of his bank account. Outside of MIT, the surrounding cities of Cambridge and Boston have undergone some transformations of their own. Much of the decaying post-industrial infrastructure such as abandoned factories, warehouses, and even the land that the railroad tracks once occupied has been reclaimed for a variety of new uses. Housing in particular became a major concern when hundreds of thousands of people began moving back to the city to save on transportation costs and enjoy the benefits of the dense urban core. While some families still clutch steadfastly onto the suburban dreams of the mid-20th century, most have come to realize the numerous advantages of an urban lifestyle, thanks to persuasive marketing and community revitalization campaigns driven by officials at both the local and federal levels. And

though urban congestion and traffic are still perennial problems with the Boston metropolitan area more crowded than ever, the public transportation network has expanded to include new lines of rapid underground Maglev trains that hover gently over their tracks, unimpeded by the force of friction.

After a leisurely lunch and a few more hours of afternoon classes, the student trudges back to FWC while discussing a project he is working on with a student in Kyoto, Japan through his digital content manager. Though the two students have never met and do not even speak the same language, their respective systems effortlessly bridge the language and cultural gap through advanced voice and text translation software. He passes by one of MIT's newest public art projects, the Water Spiral, which shoots reclaimed rain water into the air and doubles as an irrigation system for the few remaining West Campus athletic fields. Much of the campus landscaping and facilities management is done by robots and machines, which have become much less costly and more reliable than human labor. The robots go about their duties such as trimming grass, planting new assortments of spring flowers, and maintaining buildings almost incessantly, stopping only to dock at their host buildings for brief recharging or for shelter during inclement weather.

As the student settles back down in his room to work on some assignments, he peruses through the latest issue of *Technology Review* on his cylindrical document viewer which can project the pages of the magazine onto any surface of his room. "50 Years Ago in Technology Review," reads the article which describes an archaic digital object with highly limited battery life, storage space, learning abilities, and communication capabilities called an iPhone. "*I don't know how they managed back in those days,*" he thinks to himself with a smile, kicking off his shoes and leaning back in his chair.