# Personas **&** Scenarios

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Adam Torres

### Product Overview

Syntax 2D is an open source licensed spatial analysis software program developed by the Taubman College of Architecture and Urban Planning. Space syntax is a suite of techniques that allow researchers and practitioners to analyze spatial configurations of interior and urban spaces. Syntax 2D performs isovist, axial line and visibility graph analysis. Unique among its software competitors, Syntax 2D allows users to also run analysis on paths and points. Measures such as connectivity, integration and mean depth can be visualized on a grid and also exported to an Excel spreadsheet as quantitative data. Source files for Syntax 2D are computer-aided design (cad) drawings in the 2000 dxf format.



## Louis Stone

#### Background

- 28-year old white male
- · 2nd year Ph.D student
- Lives in New York, NY
- Single

#### Attributes

- Research is his life
- Very determined, has not taken any time off from school
- Comfortable with computing in general
- Multitasker

#### Education

- B.S. Arch from Rhode Island School of Design
- M. Arch from MIT

#### Needs

- Must have axial analysis capabilities
- He wants his data quickly
- Doesn't want a program that will slow his computer down
- Wants it to be easy to use and to remember cause he doesn't use it all the time.

#### Persona

Louis received his Bachelor of Science in Architecture from the Rhode Island School of Design then went on to earn a Master of Architecture degree from Massachusetts Institute of Technology. He is currently a 2nd year Ph.D student at Columbia University in the Graduate School of Architecture, Planning and Preservation. Louis first became fascinated with architecture when he saw The Pyramids of Egypt. Since then, he has pursed architecture throughout his schooling. In graduate school he was mentored by Dan Chen who studied space syntax and soon after Louis' research interest began to develop. There he worked on numerous spacial analysis projects investigating work environments and integration.

Louis' research now centers on analyzing axial lines within apartment complexes to understand the interaction between axial lines and a sense of community. His wishes to use his research to better design apartment complexes and utilize space that will foster a communal environment. He was recently awarded a large grant through the University to continue and apply his research to a new campus housing unit.

Louis started using Syntax2D when he first began his Ph.D and prior to using Syntax2D, he relied on Depthmap, another free spatial analysis software package. While doing research, Louis often utilizes visibility, path, and axial line analysis to analyze floor plans of buildings to better understand the social impact of environmental space. He utilizes Syntax2D to analyze spatial layouts and design layouts with more visibility and integration. Because he wanted data concerning paths taken by people in a given space, he turned to Syntax2D, which is currently the only spatial syntax software that provides path analysis functionality.

Louis spends most of his time at a 15-inch IBM ThinkPad, when he's not teaching courses as a graduate student instructor. When using a computer, Louis uses multiple programs at a time--typically an e-mail client, web browser, Microsoft Excel and Stata. He uses his e-mail client for communication, his web browser for research, Excel for storing the exported data from Syntax2D, and Stata for statistical analysis. Syntax2D and AutoCAD are rarely both on at the same time, because once drawing have been made he is done using AutoCAD.



## Louis Stone

#### Scenario

Louis has spent his entire day cleaning up an AutoCAD drawing of his latest apartment complex. It as take him hours to go through the entire floor plan in AutoCAD and make sure all the lines are poly lines and are connected to one another and that all layers are named properly. Louis knows that if there is a problem with the drawing, Syntax2D will not import the file and he will not get his data.

Also prior to importing the file, Louis creates axial lines within the floor plan manually. Cleaning up the AutoCAD drawing and manually created axial lines are the most tedious task that must take place prior to importing to Syntax2D. Louis finishes prepping the file and exports it to a DXF file so Syntax2D can interpret it.

Louis starts the Syntax2D program and selects 'Import' from the file menu and then selects 'DXF...' from the submenu. The dialog box pops up and he locates the exported DXF file from AutoCAD. Louis then enters all the layer names in the dialog box and clicks 'OK' to import the file. The AutoCAD drawing he was perviously working on is now imported into Syntax2D.

Now that the floor plan is imported into Syntax2D, Louis wants to do an analysis on the axial lines he created in AutoCAD. He must import the axial lines layer from the DXF file, so he selects the 'Axial' drop down menu, then selects 'Import Axial Lines.' From the pop-up menu dialog box, Louis locates the file he had previously created, selects it, and clicks 'Open.' Another pop-up menu appears and requires Louis remember the layer name in which he drew the axial lines in AutoCAD. He types 'axial' and clicks 'OK.' An overlay of the axial lines appear over the floor plan.

Louis is now ready to run an analysis and he clicks the 'Axial' drop down menu and then selects the 'Run Analysis.' Because Louis uses Syntax2D so infrequently, he also pauses here and wonders what exactly is going on, then he remembers he must select a measurement to be displayed. He clicks on the 'Axial' drop-down menu, then selects the 'Show Axial Line Properties...' submenu, then for his research selects the 'Connectivity' measurement.

Now that the axial measurement that he is interested in is now being displayed, he is ready to export his data to Excel. He selects 'Axial' from the drop-drown menu, then selects 'Export...' then selects 'Comma Separated Values...' to export the data to a new file. A 'Save As' pop-up dialog box is displayed and he enters a file name and clicks 'Save.'



## Ruth Davis

#### Background

- 37-year old African-American female
- Urban Planner employed by the State of Idaho
- · Lives in Eagle, Idaho
- Married
- 2 Children
- Annual Income: \$55,000

#### Attributes

- Only uses the computer when she has to.
- Computer knowledge limited to the tools used for urban planning
- Work environment is always changing

#### Education

- B.A. in Architecture from University of Kansas
- M. of Urban Planning from University of Michigan

#### Needs

- Must have path analysis
- Must be easy to use and to remember cause she doesn't use it all the time.

#### Persona

Ruth previously worked for a large urban planning firm that did a range of work from city planning to housing plans. Ruth's past work mainly centered on housing subdivision planning with the largest being 250 houses. She has worked on numerous housing subdivisions in many growing cities, such as Boise, ldaho, Phoenix, Arizona, and Irvine, California. She recently decided to settle in Eagle, Idaho with her husband and two young children and took a job with the State of Idaho.

Ruth's job with the State of Idaho concerns developing long term city plans for the ever growing city of Boise and its surrounding areas. The Boise area and surrounding valley is one of the nations fastest growing areas and is in desperate need of better urban planning to accommodate the growing population and the assuage the strains of an aging infrastructure. Most of her education surrounded urban planning and design, but due to her job with the State of Idaho, she has become interested in space syntax and its affects on flow and congestion.

The State of Idaho has set out long term project to fix the traffic congestion problem in which Ruth will manage and analyze to redesign roads that will better handle an increased population. She found the Syntax2D software package online and has started using it to analyze paths of high congestion and its surrounding area. She also found Depthmap as a free download online, but chose Syntax2D because of it's path analysis capabilities, which isn't supported in Depthmap, and it's toolbar with shortcuts to many commonly used features.

She uses her 17-inch widescreen Toshiba laptop mainly to develop urban plans using AutoCAD. While she is designing this AutoCAD drawings, she doesn't do much else on the computer. Occasionally, she will use a web browser to check her e-mail or gather some information, but she never fully multitasks. She doesn't leave on multiple programs at once, she's very much a single task user and she doesn't quite feel comfortable using a computer outside of what she uses it for on a work basis. Yet, while using AutoCAD, she tends to use the toolbars, keyboard shortcuts, and commands due to her familiarity. Her work environment is continuously changing as she visits sites to observe current usage trends and moves from her home office to her work office.



### Diego **Ferreira**

#### Background

- 45-year old Hispanic-American male
- Professor in the School of Architecture and Urban Planning at University of Kansas
- Lives just outside Lawrence, Kansas
- Married
- No children
- Annual Income: \$49,000

#### Attributes

- Computer Savvy
- · Has personal webpage
- Loves technology, early adopter.
- Multitasker

#### Education

- B.Arch from Tulane University
- Ph.D in Urban Design & Planning from the University of Washington.

#### Needs

- Must have path analysis
- Wants it to be easy to use and to remember cause he doesn't use it all the time.

#### Persona

Diego received his Bachelor of Architecture from Tulane University and then earned a Ph.D in Urban Design and Planning from the University of Washington. He is currently an associate professor in the School of Architecture and Urban Planning at the University of Kansas. Diego is a leading researcher in space syntax and his research currently focuses on innovation and change within large companies and how environmental space affects innovation through social networks. More specifically, he is interested in how space can affect collaboration and the spreading of ideas. His current study was recently funded by a substantial National Science Foundation grant.

Prior to his research on innovation and space, he conducted numerous studies concerning space and social behavior on how physical environments affect people's behaviors. For his past research he utilized Depthmap for most of his spatial analysis needs despite it's lack of path analysis functionality and dropdown driven menuing graphical interface. His current research is highly dependent upon path analysis functionality and due to this, he adopted Syntax2D soon after it was released as his primary spatial syntax software.

Despite the infrequent use of Syntax2D within the research process, Diego has noticed that the graphical user interface is much nicer in Syntax2D due to the shortcuts found on the toolbar, rather than a drop-down driven menuing system used in Depthmap, which made it slower to operate. Diego spends most of his time in AutoCAD cleaning up drawings and prepping them to import into Syntax2D. While using AutoCAD, Diego has other programs running while using AutoCAD, such as an e-mail client, web browser, Microsoft Excel, Mind Manager, and Gantt Charts. Once the AutoCAD drawing has been imported into Syntax2D, setting up the analysis takes just a few minutes, but processing and computing all the data can take hours depending on the analysis.

During the time that the analysis is being processed, Diego looks up research articles, visits news sites, updates his website and curriculum vitae, and visits technology news blogs, such as, Engadget and Wired.



### Diego **Ferreira**

#### Scenario

Diego has just received AutoCAD drawing floor plans of a large company that is interested in having their space analyzed and optimized for increases collaboration and innovation. He will spend about week cleaning up the AutoCAD drawing and prepping them to be imported in to Syntax2D. He must make sure all the lines are poly lines and are connected to one another and that all layers are named properly prior to importing them, because if there is a problem with the drawing, Syntax2D will not import the file.

Also prior to importing the file, Louis creates paths within the drawing manually. Cleaning up the AutoCAD drawing is the most tedious task that must take place prior to importing to Syntax2D. After Diego finishes prepping the file and exports it to a DXF file so Syntax2D can interpret it.

Diego starts the Syntax2D program and selects 'Import' from the file menu and then selects 'DXF...' from the submenu. The dialog box pops up and he locates the exported DXF file from AutoCAD. Diego then enters all the layer names in the dialog box and clicks 'OK' to import the file. The AutoCAD drawing he was perviously working on is now imported into Syntax2D.

Now that the drawing is imported into Syntax2D, Diego wants to do an analysis on the paths he created in AutoCAD. Before he can do an analysis, he must first create a grid, so Diego selects 'Grid' from the drop-down menu, then selects 'Grid Setup/ Options' to define the granularity of the grid. Diego now initializes the grid by selecting 'Initialize Grid' from the 'Grid' menu. At this point the grid is displayed over the floor plan.

Diego is now ready to import paths into his floor plan. He must import all path lines layer from the DXF file, so he selects the 'Path' drop down menu, then selects 'Import Path.' From the pop-up menu dialog box, Diego locates the file he had previously created, selects it, and clicks 'Open.' Another pop-up menu appears and requires Diego to recall the layer name in which he drew the path lines in AutoCAD. He types 'paths' and clicks 'OK.' An overlay of the paths appear over the floor plan. Diego now must configure the path to specific settings, so he selects 'Path Options' from the 'Path' drop-down menu, selects which path he wishes to configure, changes the parameters, and clicks 'OK.' He must now create observation points along the path, so he selects 'Create Observation Points...' to specify the node count, and clicks 'OK.'

Diego is now ready to run an analysis and he clicks the 'Path' drop down menu and then selects the 'Create Path Isovist.'



## Diego **Ferreira**

The path measurement that is displayed by default is not the measrement that he is interested in, so he selects 'Show Point Properties' from the 'Path' drop-down menu. He now can select a measurement that he is most interested in, so he clicks on 'Mean Radial.' Now, the measurement he is interested in is being displayed, he is ready to export his data to Excel. He selects 'Path' from the drop-drown menu, then selects 'Export...' then selects 'Comma Separated Values...' to export the data to new file. A 'Save As' pop-up dialog box is displayed and he enters a file name and clicks 'Save.'