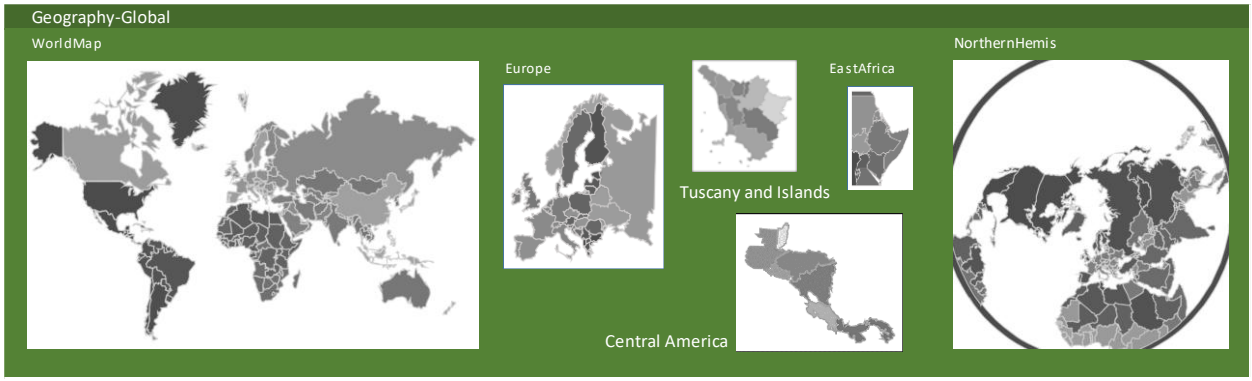
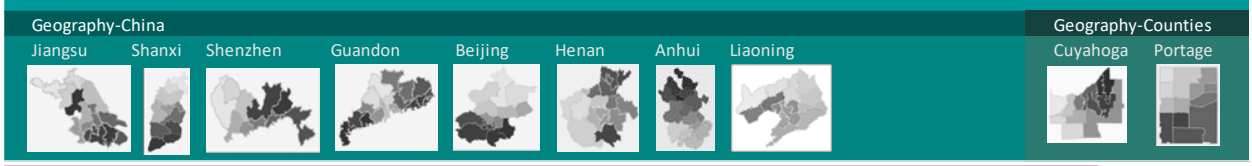
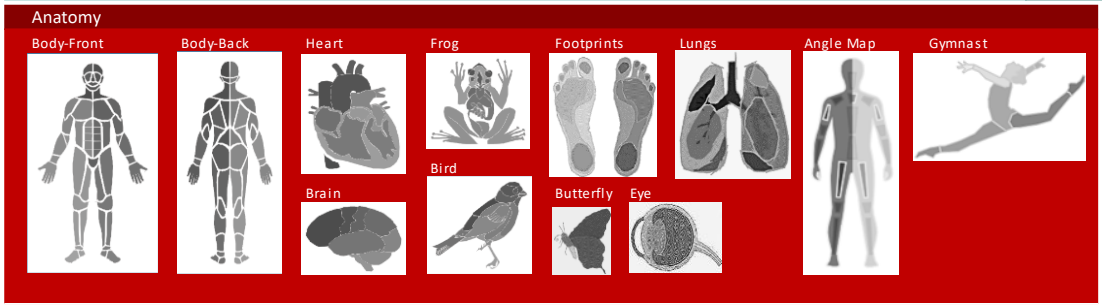
Blackbelt Ribbon heatmap library (as of May 2025)





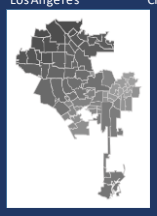


Geography-City

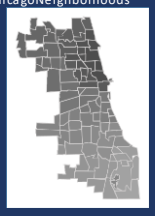
LowerManhatten

Boston

LosAngeles



ChicagoNeighborhoods

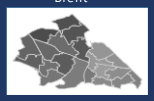


PittsburghNeighborhoods

EmoryCampus

NewYorkCity

Brent

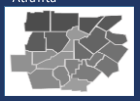


Brooklyn

StLouis

BuenosAires

Atlanta



Charlston

Strabourg

Cincinnati

Milwaukee

Tokyo

London

SanFrancisco

Columbus

BucyrusEast

BrecksvilleVoting

ChicagoSkyline

ColumbusSkyline

CincySkyline

COTAHeat

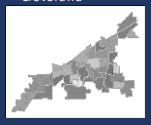
OSUOval

CapeCode

Shanghai

Akron Wards

Cleveland



Dallas

Taipei

Copenhagen

OSUCampus

Moscow

NorthResidence

Toledo

Seattle

Denver

Orlando

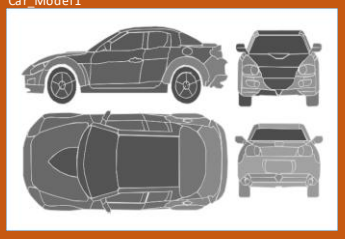
Chuoku

Dayton

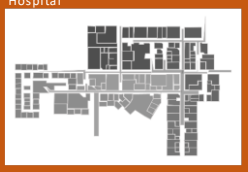
Nantucket

Blueprints

Car_Model1



Hospital



RocketShip

TallahasseeMall

Mask_Hockey

Stadium

TheShoe

Lamborghini

Camera

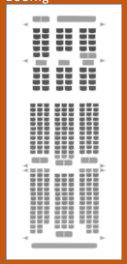
Shoe

Building2

BaseballSpray

HeinzField

Boeing



Jet1

OhioUnion

AirplaneProts

Flights

Citi Field Mets

Computer

Shoe2

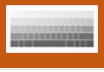
GreatAmericanBallpark

RotaryPhone

Airplane2

AWingStarfighter

Keyboard Map



Wristwatch

Artwork

EagleSalmon

Tiger

ArcDeTriomphe

Brutus

OSULogo

Garden Elements

NapoleonD

Blackbelt Ribbon Add-in Functions

TEXT and REFERENCE FUNCTIONS			
	ExtractURL	<See Chapter 3>	E.g. =ExtractURL(G5)
	Provides the address of the first hyperlink associated with a cell.		Parameters: • Range of cell in which hyperlink exists
	TermFreq	<New 2024>	E.g. =TermFreq(B2:F100, ”Free“,0)
	Provides the number of cells in a range that contain a specified term, or alternately the total appearances of term.		Parameters: • Cells with one or more terms for examination • Term of interest for search [Optional] 1=Number of cells, 0=Total appearances
	VFilters	<New 2022>	E.g. =Vfilters("e", D5:D34, 0, 4, 3)
	Provides the full multi-column content of rows matching a criteria. {Contributed by Andy Ebenstein 2022}		Parameters: • Filtering criteria; Rows beginning with this content will be returned in detail • Source range of data to be filtered • Member of a comma delimited list of column indices to be returned (1st index=0) [Optional] Additional members of the above defined list
	AlphaNums	<New 2022>	E.g. =AlphaNums(G5,1)
	Takes a string of characters and returns only the letters and/or numbers (with spaces) of that string.		Parameters: • Full string containing numbers, letters and other characters • [Optional] 0=Both Numbers and Letters, 1=Just Letters, -1=Just Numbers
	TermCount	<New 2024>	E.g. =TermCount(B2:B100,” “)
	Provides a sorted nx2 array of unique terms and their count, drawn from a selected range of cells.		Parameters: • Full array of cells with one or more delimited (separated) terms per cell • The term delimiter, such as a space, comma, or semicolon, etc. (e.g., “;”)
	TermFreq	<New 2024>	E.g. =TermFreq(B2:F100, ”Free“,0)
	Provides the number of cells in a range that contain a specified term, or alternately the total appearances of term.		Parameters: • Cells with one or more terms for examination • Term of interest for search • [Optional] 1=Number of cells, 0=Total appearances
	FindRight	<New 2025>	E.g. =FindRight("dog","my dog is a great dog, it's true") would return 19
	Finds the starting index of a substring within a larger string, using a search that starts from the right side and moves left.		Parameters: • Substring to find • Larger string to look within • [Optional] Starting character counting from the right to the left
GRAPHICAL FUNCTIONS			
	AdjustColors	<See Chapter 5>	E.g. =AdjustColors(A1,Rand(),"Auto-updating")
	Adjusts the colors of a HeatMapper generated polygon set, based on header and left column cell colors and 2nd column values.		Parameters: • Upper left cell of associated HeatMapper data series • Either a fixed value, reference or Rand() depending on updating preferences • What content/notes this cell should present to the user")
	PathLength	<See Chapter 3>	E.g. =PathLength(P2:R21, TRUE)
	Calculates the total path distance along a sequence of points of any number of dimensions.		Parameters: • Your full data range of observations without headers • TRUE if individual records are in each row, and dimensions are by column
	PolyPtsExtract	<See Chapter 3>	E.g. =PolyPtsExtract("Shape4","P1")
	Extracts all the pairs coordinates of a drawn polygon and stores these in a newly created text box.		Parameters: • The name of the drawn polygon for extract • Name of the destination cell for later text box transfer
	PolyPtsBuild	<See Chapter 3>	E.g. =PolyPtsBuild("P1",0.5)
	Draws a new polygon using paired data starting in a cell, assuming two columns of data and multiple rows.		Parameters: • Name of the upper left cell in the paired data set • Relative size of the polygon to be drawn; 1 = Original
	AdjustTreemap	<New 2025>	E.g. =AdjustrTreemap("Chart 1", m8, n8, Rand(),FALSE)"
	Recolors the elements of a named Treemap chart based on a designated color gradient. Assumes that a Treemap does in fact exist for recoloring.		Parameters: • Name of the Treemap chart to be recolored • Header of data labels • Header of data values • Whether the Treemap legend should be shown (T/F) • Either a fixed value, reference or Rand() depending on updating preference • [Optional] Power value to draw emphasis to either low or high values in map

STATISTICAL FUNCTIONS		
PoissonInvBB	<See Chapter 4>	E.g. =PoissonInvBB(4)
Generates a Poisson distributed random number, given a mean. Optional input for percentage, or random.		Parameters: • Mean value of the Poisson distribution [Optional] Percentile of value desired from distribution
HistoricalInvBB	<See Chapter 4>	E.g. =HistoricalInvBB(c2:c8,d2:d8)
Generates a historically distributed random number, given an array of events and their probabilities.		Parameters: • Range of events for which you have probability data • Range of probabilities for these events (summing to 1) • [Optional] Percentile of value desired from distribution")
TriangInvBB	<New 2024>	E.g. = TriangInvBB(120,160,200,0.75)
Generates a Triangular distributed random number, given a lower bound, a peak location, and an upper bound.		Parameters: • Lower bound of distribution • X-location of peak of distribution • Upper bound of distribution • [Optional] Percentile of value desired from distribution
Stdevif	<See Chapter 5>	E.g. =Stdevif(j4:j25,"Low",m4:m25)
Delivers the standard deviation of a set of cells subject to a criteria, consistent with AverageIF. As of 2022, allows the final parameter to be a multicolumn range.		Parameters: • Vertical Range of data that will be examined by criteria • Criteria to be checked against for data use • Range of cells that might contain values to include in calculation of standard deviation
Percentileif	<See Chapter 5>	E.g. =Percentileif(j4:j25,"Low",m4:m25,0.25)
Delivers the value at the percentile of a set of cell, subject to a criteria, consistent with AverageIF. As of 2022, allows the final parameter to be a multicolumn range for analysis.		Parameters: • Vertical Range of data that will be examined by criteria • Criteria to be checked against for data use • Range that might contain values to include in extraction of percentile value • The percentile level sought for the value to be returned; e.g. 0 = Min, 1 = Max, 0.5 = Median
MultiAvgif	<New 2022>	E.g. = MultiAvgif(C12:C120, "Operations", D12:F120)
Delivers the average of a set of cells subject to a criteria. Consistent with AverageIF, but allowing multicolumn range as a final range for averaging.		Parameters: • Your full data range of observations without headers • Criteria to be checked against for data use • Range of cells that might contain values to include in calculation of average
SpearmanBB	<New 2024>	E.g. = SpearmanBB(A2:A201,C2:C201)
Calculates the Spearman rank correlation given two equally sized arrays of values		Parameters: • First array of values • Second array of values
Linreg	<New 2022>	E.g. = Linreg(F48:F73,B48:E73,1,B47:E47)
Provides linear regression results as per LINEST, but with original arrangement of X-variables, labels and t-tests of significance of coefficients.		Parameters: • Your full data range of Y-values, without headers • Your full range of X-values, without headers • Binary [0,1] specification of whether an intercept is to be estimated • [Optional] Array of X-variable names (headers)
StepwiseByAIC	<New 2023>	E.g. = StepwiseByOLS(G2:G376,A2:F376,1,A1:F1)
Provides stepwise results for the inclusion of predictor variables in OLS regression, based on AIC contributions (strongest contributors listed on top).		Parameters: • Your full data range of Y-values, without headers • Your full range of X-values, without headers • Your range of X-variable names (headers)
Bivariate	<See Chapter 5>	E.g. =Bivariate(0.5,0.5,X12,X13,Y12,Y13,-0.2)
Delivers the bivariate distribution frequency at a coordinate pair, given both means, stdevs and correlation.		Parameters: • X coordinate • Y coordinate • X Mean • Y Mean • X Standard Deviation • Y Standard Deviation • X-Y Correlation
SimpleMA	<New 2024>	E.g. = SimpleMA(B2:B201,-1, 3)
Provides fits statistics for a Moving Average estimation, and estimates optimal n, if input parameter <1		Parameters: • Y-values, without headers • n • [Optional] ObjectiveType (1: MAE, 2: RMSE, 3: MAPE) **NOTE: Components of Output string --→ MAE ; RMSE ; MAPE ; n**
SimpleES	<New 2024>	E.g. = SimpleES(B2:B201,0.412)
Provides fits statistics for a Simple Exponential Smoothing estimation, estimates optimal alpha, if input <1		Parameters: • Y-values, without headers • alpha • [Optional] ObjectiveType (1: MAE, 2: RMSE, 3: MAPE) **NOTE: Components of Output string --→ MAE ; RMSE ; MAPE ; alpha**
HoltsDES	<New 2024>	E.g. = HoltsDES(B2:B201,-1,0.5, 3)
Provides fits statistics for a Holts estimation, and estimates optimal parameters (e.g. alpha) if input <0		Parameters: • Y-values, without headers • alpha • beta • [Optional] ObjectiveType (1: MAE, 2: RMSE, 3: MAPE) **NOTE: Components of Output string --→ MAE ; RMSE ; MAPE ; alpha ; beta**
WintersTES	<New 2024>	E.g. = WintersTES(B2:B201,0.1,0.3,-1,4,0,3)
Provides fits statistics for a Winters estimation, and estimates optimal parameters (e.g. gamma) if input <0		Parameters: • Y-values, without headers • alpha • beta • gamma • Seasonal degree (M) • [Optional] Additive (vs. Multiplicative) • [Optional] ObjectiveType (1: MAE, 2: RMSE, 3: MAPE) **NOTE: Output string --→ MAE ; RMSE ; MAPE ; alpha ; beta ; gamma**

COMPUTATIONAL FUNCTIONS		
	CompSearch_TSP <See Chapter 6>	E.g. =CompSearch_TSP(D$4:E13)
	Comprehensively examines all N! sequences of N X-Y points, and provides best, worst and the option to view all other sequences encountered.	Parameters: • Range of X-Y coordinate pairs • [Optional] Output cell for transfer of all sequences from textbox to spreadsheet • [Optional] Whether the textbox is equipped with an auto-extract macro
	NearestNext_TSP <See Chapter 6>	E.g. =NearestNext_TSP(D$4:E13, Z1, TRUE)
	Applies the Nearest-Next heuristic to examine N*(N+1)/2 sequences of N X-Y points, and provides best and worst encountered, and the option to view all other sequences encountered.	Parameters: • Range of X-Y coordinate pairs • [Optional] Output cell for transfer of all sequences from textbox to spreadsheet • [Optional] Whether the textbox is equipped with an auto-extract macro
	FurthestNext_TSP <See Chapter 6>	E.g. =FurthestNext_TSP(D$4:E13, Z1, TRUE)
	Applies the Furthest-Next heuristic (opposite of Nearest-Next) to examine N*(N+1)/2 sequences of N X-Y points, and provides best and worst encountered, and the option to view all other sequences encountered.	Parameters: • Range of X-Y coordinate pairs • [Optional] Output cell for transfer of all sequences from textbox to spreadsheet • [Optional] Whether the textbox is equipped with an auto-extract macro

ZipTranslate Add-in Functions

	FindZip	<ZipTranslate Add-in 2022>	E.g. = FindZip(B4), where B4 contains 43210
	Takes a given US Zip Code and returns the city, county and state associated.		Parameters: • The Zip Code of interest
	FindIPaddress	<ZipTranslate Add-in 2022>	E.g. = FindIPaddress("149.142.201.252")
	Takes a given IP Address and returns the Zip Code (or other district code), city, region, country and latitude/longitude.		Parameters: • The IP Address of interest (*as text*) {* Note that limits exist on the number of IP Address translations per day}