**Optimator C# Backlog**

*Bugs*

* Outlines width included in Piece.LineCoords
* Curve Calculations (<https://stackoverflow.com/questions/52433314/extracting-points-coordinatesx-y-from-a-curve-c-sharp>)
* Once set is connected piece movement is wonky
* Turn is being modified when items are added to set
* Shape flipped in Mum's demo (plane-like, was invalid then became valid)

*Features*

* Spot Connection
* Clicking Works
* See Bookmarks re: region click (<https://docs.microsoft.com/en-us/dotnet/desktop/winforms/advanced/how-to-use-hit-testing-with-a-region?view=netframeworkdesktop-4.8>  
  <https://docs.microsoft.com/en-us/dotnet/api/system.drawing.region.-ctor?view=dotnet-plat-ext-3.1#System_Drawing_Region__ctor_System_Drawing_Drawing2D_GraphicsPath_>)
* Decals (<https://docs.microsoft.com/en-us/dotnet/api/system.drawing.drawing2d.combinemode?view=dotnet-plat-ext-3.1#System_Drawing_Drawing2D_CombineMode_Replace>  
  <https://docs.microsoft.com/en-us/dotnet/api/system.drawing.graphics.setclip?view=dotnet-plat-ext-3.1>)
* Invisible Mode for Spots (Two connected = blank line)
* Line Width Gradient
* Adjust A in RGBA
* Gradients (Fill and Outline)
* Using existing points from old piece in new piece
* Allow for single frame of scene (first scene) to be saved as solo png (Also allow for images only to be saved (no video export)?)
* Designer Panel (An easier way to create sets from a single panel, uses lots of key-bindings. E.g. allows you to draw a piece, press enter and then immediately start drawing the next one. Create new menu item called 'Fast Track' which contains Designer and another Editor which is for quickly editing things like colour across multiple items in a set)
* Goal: <https://www.deviantart.com/quinnyilada/art/Adopt-Auction-Outfits-97-CLOSE-845282362>
* \*Line Direction (May change from Flat to Moveable, Re-order if so)
* Animated Curve
* Save full file path (reload btn click, export feature (Allow for a set and all sub pieces to be copied to a new folder automatically/ scene and all parts/ piece and all decals etc. ALSO Option to have all components put into one save file (pieces inside set file inside scene file inside video file all in one document))
* Setting for base to override right/down or not
* New spots old connectors+
* Change Piece drawing process to re-size and re-match points (Alternative to moving points for rotation and turn, draw as you would with front and have it auto-fit with the front drawing (possibly with some human intervention to manually select spots that are supposed to represent the same place))
* Clone attached
* Add animations to multiple items at once
* More actions (add, remove etc.)
* Change rts implementation for sets (Up and Left Movements) (Currently moves x/y/z axis with the shape instead of keeping them constant. Ensure given rts of attached is its max rts (not just when base is rts 0))
* Snap to line/make points more specific
* Sets: SortOrder update (Fix, including incorporating flip index. FlipAngle X and Y / Turn SetOrder)
* App icon in search menu
* Trigonometric RTS (Should it be flat r --> t = t-r/distance or should it use trigonometry to complete a more circular rotation?)
* Alternative Exports (Gif and MP4) (-vcodec libx264 for mp4 (?))
* Set Icons for optrp, optrs, optrc and optrv
* CompileVideo Preview Drag Re-Arrange
* Undo
* Preview new piece when moving points
* Hide points in piece r/t view that are automatically placed in between the remaining spots
* Make adding late spots to piece easier
* Able to overlay animations on top of non-optimator videos
* Usability Testing Yellows
* Distance measurements between coords to eliminate math but allow for uniformity (piece building)
* Allow for up/down changes in original position for sets can be applied to base, rot or turn
* X/Y/Size Up Downs MinMax Limit (Use Consts Maximum Values. Apply to all updowns in piece, set, scene, video, others. Also see card on scrollbar values being able to get bigger but still being adjustable in minute amounts)
* Figure out a way to allow for large size increases (>5x) fit within the drag line
* Complex UI Features
* + Cursor Change
* + New Icons (Incl. Form Icon)
* + TabIndex update
* + ColourPickerForm (Form exists, needs work (hidden))
* + Expand (new tab)
* Zoom In/Out on Scenes (Make modifier to save vs to visualise on screen?)
* + See openable objects in neater form
* + Better directory picker
* Save btn highlighted when new changes made
* + Tabs Contain Close Btn (Not tab contents)
* Enter button when typing values makes error/warning sound
* Set and Piece forms layout the same
* Select Piece/Set with Resizable Square (not red outline as this is not always obvious)
* Unit Tests (?)
* Squash/ stretch x/y axis
* Automate Complex Pieces (Instead of making separate pieces and adding them to a set, make a piece which automatically converts the piece into sub pieces and joins into a set)
* Smoother custom lines (shaded edges) in float type
* Curves (ShapeSurfaceFunctions adjust w/ curves. Also, allow rotation and turn connectors to change)
* Move single cords
* Sprites
* Fold Pieces (Like a leaf, paper, curtain or hair in the wind flips slowly backwards. Option for overside to: merge, double, new colour (first two important for transparent items))
* Pattern Builder & Usage
* Draw with shapes (Pieces)
* Wind (PiecesForm: On WR TB Change Min: 0, Max: 100 Increment: 5 WIP.SetPieceDetails("wr" + wrUpDown.Value);)
* Custom UI (<https://stackoverflow.com/questions/3183352/close-button-in-tabcontrol>)
* ‘Camera’ moving visual field?

*Release List*

* Online Keys (User must request a new key each time and server is alerted when it has been used and it then unlocks a copy. Key also requires email in submission. Use API?)
* Go through P.L.’s software list
* Version Control (Updates)
* License Keys
* Mac Version
* Make Computer Think Software Is Safe
* Payment Process
* Release! Paid Version ^.^

*Website*

* Optimator Download
* Purchase Setup
* PayPal Payment
* Fan submission page
* Alt Emails (non html)
* Redesign Emails (See inspo powerpoint in images inspo folder (from Font Awesome))
* In logged-in pages, send un-logged-in users to home and clear session
* Make a function for easy DB access (Removed layered 'if's with error messages)
* Ensure more error messages
* About Me (Links)
* Cookies notification

*Socials*

* Create content for social media accounts
* Plan content calendar for social media accounts
* Investigate Buffer/later.com for a social media manager